

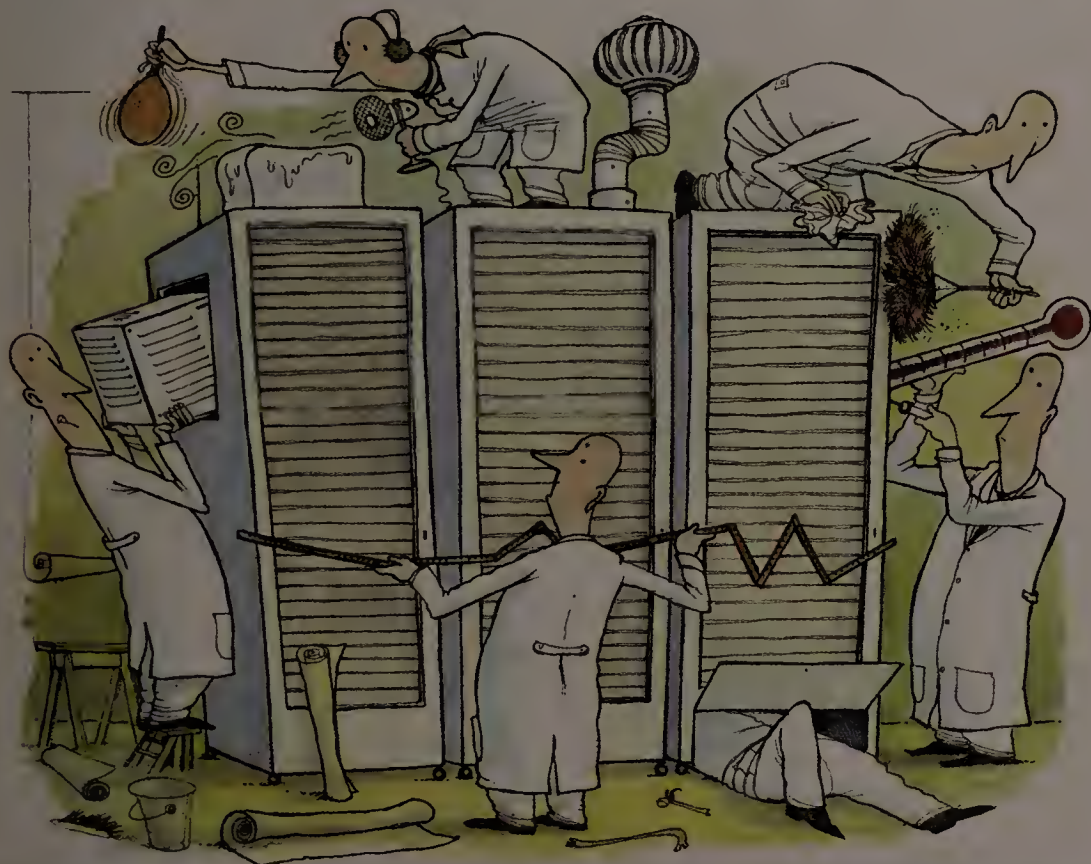
Corporate weblogs are rife with legal liabilities. Before your company sponsors one, take these precautions. **PAGE 40**

Starwood Hotels books HP to replace IBM as its outsourcing vendor and help it move off the mainframe. **PAGE 5**

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DAVID CLARK

Software Vendors' Audit Requests Irk IT Managers

Some view Sarb-Ox tie-ins as a ploy; others see nothing amiss

BY THOMAS HOFFMAN
LAS VEGAS

A number of software vendors are requesting that large corporate customers conduct self-audits against their software usage, allegedly to help the suppliers meet Sarbanes-Oxley regulatory requirements, according to several attendees at an IT asset management conference held here last week.

A corporate purchasing director at a large Midwestern financial services company who requested anonymity said his organization recently re-

ceived a letter from Sunnyvale, Calif.-based Interwoven Inc. requesting that the company conduct a self-audit of its use of TeamSite, Interwoven's enterprise content management system.

The letter said the audit was required to help Interwoven meet the Sarbanes-Oxley

ONLINE

For full Sarb-Ox coverage, visit our Web site: **QUICKLINK a3250**

Act's compliance mandates but didn't mention which regulatory requirements had to be met, said the purchasing manager. "It seemed like a soft-step

approach to get us to conduct an audit," he said.

His company ended up conducting the audit. It then reviewed the results with its legal department and informed *Audit, page 51*

GM, Boeing Push Identity Management

Expect single-sign-on rollouts to lower costs, improve access to apps

BY JAIKUMAR VIJAYAN
DENVER

General Motors Corp. plans to migrate its end-user identity management services to a single global system over the next several years as part of a broad initiative to improve IT efficiency and reduce the automaker's operational costs. When it's completed,

the consolidated identity management system will enable universal application access and single-sign-on capabilities for about 500,000 end users, including GM employees and workers at suppliers, contractors and other business partners, according to Tony Scott, the company's chief technology officer.

The new infrastructure will replace numerous silos of identity information at GM and will play a crucial role in its ongoing move toward a global supply chain and manufacturing model, Scott said at the Digital Identity World conference here last week.

"The supplier and de- *ID Management, page 14*

Data Centers Get a Makeover

Ultradense server racks, disaster recovery requirements and IP networks are forcing big changes in the way new data centers are built. By Gary H. Anthes **PAGE 23**

E-VOTING'S BIG TEST

Feds release reference versions of vendors' e-voting code for integrity checks. **PAGE 4**

Early voting turns up some IT glitches, but officials defend e-voting systems. **PAGE 4**

E-voting flaws could make all of IT look bad, says columnist Dan Gillmor. **PAGE 18**

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Symantec broadens its software strategy. **PAGE 10**

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THE TCO OF WINDOWS AND LINUX,
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*—Laura DiDio, The Yankee Group, April 2004
Linux, Unix, and Windows TCO Comparison*

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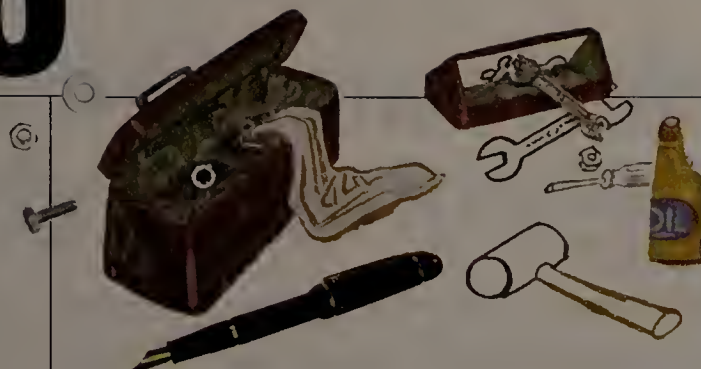
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Products to Prevent Data Theft

SECURITY: Danny Lieberman of Open Solutions Israel offers a guide to buying technology to safeguard your critical information. **QuickLink 49618**

Modify User Behavior

IT MANAGEMENT: CA architect Stevie Sacks outlines how to cut IT costs by making business units accountable for their consumption of resources. **QuickLink 50064**

E-voting Updates

NEWS: How is electronic voting working in this election? Stay up to date this week on all the latest news. **QuickLink a4760**

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AT DEADLINE

Textron, CSC Sign Outsourcing Deal

Computer Sciences Corp. said it has signed an IT outsourcing contract with Textron Inc. that's expected to be worth about \$1.1 billion over the next 10 years. CSC will manage the Providence, R.I.-based conglomerate's global data center, help desk and network operations, plus its servers and desktop systems. About 250 IT workers at Textron will be offered jobs at CSC as part of the deal.

Oracle Sets Release Date for New Apps

Oracle Corp. said it plans to ship the latest version of its ERP applications next Monday, although a spokeswoman noted that logistical issues could delay the release by a few days. Oracle announced the E-Business Suite 11i.10 software at its OpenWorld conference in early September and has already released some modules, including its CRM applications.

Revenue Down at i2; Sales, Profits Up

Supply chain software vendor i2 Technologies Inc. reported a 5% dip in third-quarter revenue compared with its year-earlier results. But Dallas-based i2 said its software license sales rose 21% year over year to \$17 million. Profits more than doubled, it said.

i2'S Q3 FINANCIAL RESULTS

REVENUE		
Q3 '04	\$111.1M	\$17.1M
Q3 '03	\$117.3B	\$7.1M

Cybercrime Arrests Net 28 Suspects

The U.S. Secret Service said it has arrested 28 people from eight U.S. states and six countries for alleged involvement in a global cybercrime ring. The Secret Service claimed that the suspects had collectively trafficked in at least 1.7 million stolen credit card numbers and caused \$4.3 million in losses among banks.

Feds Issue Test Copies Of E-voting Software

Officials can match digital signatures to reference copies, but initial use is limited

BY DAN VERTON

FEDERAL OFFICIALS last week released a set of software files submitted by five vendors of e-voting systems and voting verification tools, saying that election officials can use the code and related digital signatures to check whether the software they have bought has been modified without their knowledge.

But the so-called reference data set issued by the National Institute of Standards and Technology will likely be of little use to state officials for verifying the integrity of e-voting systems being used in tomorrow's election. And the future value of the files could be limited for states that have customized their e-voting software.

The National Software Reference Library's (NSRL) Web site said the files typically can be used only to check software that has yet to be installed on a voting machine. The notice added that "with limited exceptions," e-voting software can't generate digital signatures after it has been installed.

The NSRL notice also said that election authorities using software that has been legitimately altered won't be able to use the reference data set to compare digital signatures. Only signatures derived from the identical product releases submitted by the five vendors are available on the NSRL's Web site.

Vendors that had provided software to the NSRL as of Oct. 22 include Diebold Inc., Election Systems & Software Inc., Hart InterCivic Inc., Sequoia Voting Systems Inc. and VoteHere Inc. Oakland, Calif.-based Sequoia said it has made several submissions over the past two weeks.

Bellevue, Wash.-based VoteHere said in late June that it had submitted a reference source-code implementation for inclusion in the NSRL. Omaha-based ES&S made a similar announcement in August, and Austin-based Hart InterCivic followed suit in mid-October. North Canton, Ohio-based Diebold couldn't be reached for comment.

Facing Skepticism

The submissions were made after the U.S. Election Assistance Commission called on all e-voting software vendors to provide code to the NSRL. In a letter dated July 13, commission Chairman DeForest Soaries Jr. said having access to the code would "facilitate the tracking of software ver-

sion usage." Some observers have claimed that vendors have installed patches and upgrades prior to elections without letting officials inspect the code first. Sequoia spokesman Alfie Charles said the NSRL is storing "pristine copies" of vendor-submitted software "to help prepare for the inevitable challenges that take place whenever there are close elections."

But Avi Rubin, a professor at Johns Hopkins University who has criticized e-voting security controls, called the NSRL "smoke and mirrors." Rubin said that if e-voting software "is already rigged, storing the [digital signature] hashes only guarantees that the malicious code will be there if the hashes match."

Kim Alexander, president of the California Voter Foundation, called the vendor submissions good news, but only if there are no last-minute

EXCERPT

"This effort is a first step in being able to trace software from the vendor through the accreditation process to the states and other purchasers of voting systems. Now election authorities have a reference database to compare with the digital signatures of software provided to them by vendors."

changes to the software. "If there are technical problems with software vote counts on election night, it's possible that vendors will, as they have in the past, install patches or upgrades to get the vote count started again," she said.

Election officials will have to keep a public audit log of all software testing and installations to ensure that there's no appearance of impropriety, Alexander added. **50423**

Officials Defend Systems, Despite Early E-voting Problems

SINCE early voting began on Oct. 18 in Florida and at least seven other states where tight presidential contests are expected, voters have reported hundreds of problems to the Election Incident Reporting System, some of which resulted from technical glitches in the computers being used to support the voting process.

The incident reporting system is an online database set up by grass-roots organizations, including Verified Voting Foundation Inc. and Computer Professionals for Social Responsibility. Of the 666 incidents reported in Florida as of last Wednesday, 33 were linked to alleged malfunctions of e-voting systems in nine counties. In Broward County, for example, some voters claimed that touch-screen systems presented incomplete ballots.

Alia Faraj, a spokeswoman for Florida Deputy Secretary of

State Dave Mann, said that contrary to news reports, there have been no problems related to any of the touch-screen e-voting systems being used in the state during the early voting period. "The touch-screen systems have been operating as planned," Faraj said.

The only problems, she added, involved laptop PCs that were used to check voter-registration rolls in some counties. Those problems were fixed immediately by a simple reboot of the laptops, Faraj said.

Will Doherty, executive director of the San Francisco-based Verified Voting Foundation, said that despite Faraj's characterization of the laptop malfunctions as minor, his organization is aware of dozens of Florida voters who were turned away from the polls "because of that minor system crash."

Doherty also said there have

been multiple reports of touch-screen calibration problems in Florida. Some voters have said that when they touched the screen next to their candidate's name, the screen highlighted the name of the opposing candidate, according to Doherty.

In addition to the Florida counties, localities in Colorado, Tennessee and Texas, as well as two-thirds of Georgia's counties, have experienced connection problems between their early voting sites and the central servers that hold voter registration databases, said VotersUnite, a nonpartisan voter advocacy group.

Alfie Charles, a spokesman for Sequoia Voting Systems, said it's important not to confuse a minor glitch in a voter-registration system with voting problems. All touch-screen systems are reportedly operating normally, he said.

- Dan Verton

Tech Standards Set Tone for On-Demand Systems

IT managers cite need for application flexibility and broader data integration

BY PATRICK THIBODEAU
NEW YORK

When The Museum of Modern Art undertook an \$858 million renovation and expansion project eight years ago, it gave CIO Steve Peltzman a blank canvas for rebuilding its data center and systems.

Peltzman said last week that he's making the most of the opportunity. His staff is removing IT silos and integrating systems, with the goal of creating what he described as an "Amazon-like" flow of information that lets MOMA's business users access data no matter where it's stored.

Peltzman spoke at a forum held here by IBM to mark the second anniversary of its on-demand computing initiative. Other vendors, such as Hewlett-Packard Co. with its adaptive enterprise strategy, also are championing the use of highly integrated and flexible systems. But underpinning the marketing terms is something IT managers have understood for years: the need to support open standards.

"Anybody who realizes that integration has got to be the way, and who is dealing with a lot of legacy information, it's got to be obvious [to them] that open standards is going to make that easier," Peltzman said in an interview.

Peltzman and other users

said adherence to open technologies such as XML, J2EE and SOAP is critical. But many added that vendors continue to knock on their doors with proprietary products in hand.

Chris Dorsey, CIO at Chase-Pitkin Home & Garden, a division of Wegmans Food Markets Inc. in Rochester, N.Y., is building an integrated inventory and order management system. The ability to share information and improve business intelligence is central to the project, he said.

But Dorsey noted that one vendor pitched an order entry

system with a graphical user interface that looked as if it used Java and XML when in fact it didn't. The vendor put "window dressing on it to make it appear to be more open-standards-based and user-friendly, when in reality, it isn't that flexible or customizable," Dorsey said.

Gaining Leverage

Users said that in many cases, they're willing to give up the functionality that's included in a proprietary product because one built on open standards gives them more leverage with technology vendors.

The ability to "pluck out" applications that aren't meeting business needs "gives me

leverage and also challenges vendors in a different kind of way," said Sherra Pierre, vice president of information services at Sesame Workshop, the New York-based nonprofit group that produces *Sesame Street* and other educational programming for children.

"IT is no longer about building specific applications; it really has become more fluid in its delivery," Pierre said.

David Balik, president of General Glass International Corp. in Secaucus, N.J., said he's pleased with his IBM systems but doesn't feel joined at the hip with the vendor. "An awful lot of the applications are quite portable to other places, so the 'gotcha' factor, I

think, is a lot less," Balik said.

Even so, IBM's on-demand effort is making it easier for IT managers to sell open-source and open standards concepts to business executives, said Robert Rosen, who heads the Share user group in Chicago.

MOMA is scheduled to open its revamped facility on Nov. 20, but Peltzman said the work to integrate its departmental systems will continue for months to come. The museum is using IBM's iSeries servers and WebSphere software as part of the project, which involves developing a system architecture that enables all its databases to share information. For instance, the museum is linking its membership and retail systems to help it reach out to potential members. **50421**

Starwood Taps Hewlett-Packard for System Development, Outsourcing Deal

Hotel chain plans phaseout of its IBM mainframes

BY PATRICK THIBODEAU

IT flexibility has become vital to Starwood Hotels & Resorts Worldwide Inc. And to try to make that a reality, Starwood has immersed itself in a project called Fusion that tightly couples its IT plans with business needs and includes a new reservation system that will link many of the company's hospitality services and make them more accessible online.

Starwood last week said that it has signed a seven-year, \$100 million technology and outsourcing deal with Hewlett-Packard Co., which will help develop the J2EE-based reservation system and then manage it while providing a variety of other IT services to White Plains, N.Y.-based Starwood (see box).

HP is replacing IBM as Starwood's outsourcing vendor, and the decision to build a service-oriented architecture for the new reservation system means that the hospitality

company will gradually end its use of the IBM mainframes that run its existing Cobol-based applications.

Tom Conophy, Starwood's chief technology officer, said the goal is to create a system that can handle room rentals plus a range of other services, such as spa reservations for hotel guests. In addition, improved integration of back-end systems will allow for more-sophisticated credit card processing functions, he said.

Handle Future Growth

Starwood's IT team looked at IBM's ability to run Linux on the mainframe. But Conophy said the company's long-term direction of its IT architecture hinged on moving from a mainframe environment to lower-cost Unix and Linux systems that could easily increase in size to handle future business growth.

Conophy said the new system should help Starwood save \$15 million to \$20 million annually in IT operating costs.

As part of the project, Starwood will install HP's Itani-

HP will handle the following IT tasks for Starwood:

OPERATE the company's core computing complex and its messaging systems.

PROVIDE network management and multivendor server support services.

ASSIST with application development and host Starwood's Web sites.

BUILD an upgraded disaster recovery facility.

um-based Superdome high-end systems running a mix of HP-UX and Linux. HP-UX will be used on the company's database servers, and Conophy said the Unix operating system is well designed to work with the Superdome hardware — a strength that it has over Linux. Starwood also plans to use HP's x86-based ProLiant servers.

The company, which owns Sheraton Hotels & Resorts, Westin and other hospitality chains and operates 738 hotels

in 82 countries, outsourced its data center operations to IBM six years ago. IBM declined to comment about the new contract with HP, which Starwood negotiated when the deal with IBM came up for renewal.

IBM is as capable as HP is in providing technology, Conophy said. He added that the decision to switch to HP as an outsourcer was based on its willingness to be more flexible on the terms of the managed services contract than IBM would be.

Among the issues that Conophy cited was the ability to do third-party benchmarking. He said he wanted to be able to use a third-party firm to help compare Starwood's IT service-level agreements against marketplace trends over the course of the contract. HP was more willing to allow periodic benchmarking than IBM was, he said.

Stan Lepeak, an analyst at Meta Group Inc., said the use of benchmarking during an outsourcing contract could result in cost reductions for users or commitments by vendors to improve performance. And as more and more data center systems are commoditized, such benchmarking is becoming easier to do, Lepeak said. **50420**



MOMA took advantage of a physical renovation to remove IT silos and integrate systems.

Business Execs Must Learn to Embrace ILM

But convincing them that ILM can cut costs and ease data flow is a challenge

BY LUCAS MEARIAN
ORLANDO

CORPORATE IT operations are moving ahead with efforts to develop information life-cycle management (ILM) schemes that can efficiently and cost-effectively store data so that its level of availability is consistent with its importance to the business.

But users at last week's Storage Networking World conference here maintained that before a company can establish an ILM policy or begin a search for products that can migrate data across tiers of storage, the business side must take ownership of the project and define the importance of different types of data.

Paul Seay, chief infrastructure architect at Northrop Grumman Corp. in Los Angeles, said his company is focusing on convincing business groups of the potential cost savings of storing data on the medium that's most appropriate for it, based on its importance.

"We're focusing on the cultural problem first," Seay said.

Seay declared that standards should be established to identify data on open systems, just as standards were developed in the mainframe world to identify data sets. XML could help with the tagging of metadata, but a copy of the application that created the data would have to be maintained in order to read it in the future, which brings up digital rights

management issues, he said.

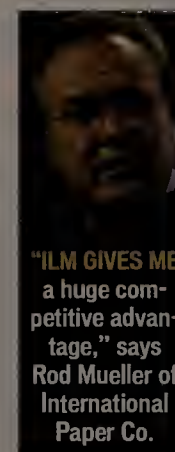
Ken Walters, senior director of enterprise platforms at the Public Broadcasting Service in Alexandria, Va., agreed that management must agree to create the necessary policies and procedures before ILM technology can be installed.

"ILM is a must-do," said Rod Mueller, manager of technology and infrastructure at Stamford, Conn.-based International Paper Co. "ILM gives me a huge competitive advantage by reducing the cost of storage." Mueller said he began pitching the scheme to the company's

business units after learning about ILM at last fall's conference. Today, International Paper's seven units are evaluating the validity of their data based on its age and how often it's used, he said.

Mueller said changing mind-sets within the business has been difficult because managers consistently require that data be stored on top-tier arrays. But he has found that once chargeback for storage costs enters the conversation, attitudes change.

Steve Duplessie, an analyst at Enterprise Strategy Group Inc. in Milford, Mass., said technologies pitched today as ILM are actually point products designed for specific



"ILM GIVES ME a huge competitive advantage," says Rod Mueller of International Paper Co.

functions such as data migration from secondary storage to tape. "ILM is still more hallway discussion than practical technology," he said.

John Halamka, CIO at CareGroup Inc., a Boston-based operator of six hospitals, has developed an ILM strategy for his 100TB storage-area network

so that it automatically migrates patient documents and medical images between tiers of storage consisting of EMC Corp. Symmetrix, Clariion and Centera arrays. Still lacking is the ability to manage data movement at the point of creation by business applications like SAP, Oracle or Sybase.

50394

EMC 'Virtualizes' the Network

ORLANDO

EMC last week unveiled its long-anticipated storage virtualization technology, which the company said lets users manage its arrays - and high-end boxes from major competitors - through a single interface.

"This is finally EMC giving in to the fact that storage is going to become virtualized," said Nancy Hurley, an analyst at Enterprise Strategy Group.

EMC said at Storage Networking World here that its product, called Storage Router, is a combination of its own firmware and so-called intelligent switches and directors from Cisco Systems Inc., Brocade Communications Inc. and McData Corp.

The switches are among a new breed of storage technology that uses application-specific integrated circuits to crack open data packets, read the informa-

tion inside and route the data.

Robert Sadowski, a product marketing manager at EMC, said that the company will eventually write its code to a standard API called Fabric Application Interface, which is being developed by the Washington-based International Committee for Information Technology Standards.

EMC first tipped its hand about Storage Router at its annual user conference last April, outlining plans to release a beta version to users the following quarter. The

router, in beta now, will ship in the first half of 2005.

The product will work with EMC's Symmetrix and Clariion products as well as Hitachi Data Systems Corp.'s 9900 series, Hewlett-Packard Co.'s EVA line and IBM's Enterprise Storage Server, also known as Shark.

EMC said that Storage Router can perform port-level processing at a rate of 30,000 to 40,000 I/Os per second and is highly scalable.

- Lucas Mearian

Dell CEO Says EMC Pact Could Expand; Merger Unlikely

BY LUCAS MEARIAN

Dell Inc. has been a reseller and manufacturer of EMC Corp. low-end and midrange arrays since 2002. As the partnership grows and Dell's annual storage revenue passes the \$1.5 billion mark, Dell CEO Kevin Rollins must clearly define his company's role as a partner and potential competitor to EMC.

At Storage Networking World last week, Rollins spoke with Computerworld about Dell's evolving relationship with EMC and about his plans to support the

emerging Internet SCSI standard to help users manage increasingly complex storage-area networks.

How much is Dell competing with EMC as you creep up the storage stack and EMC creeps down the stack? Not too much, because

most of our business will be in the small-to-medium business space. That's why we did the partnership.

Are there any plans to expand the agreement to have Dell manufacture EMC's high-end systems?

Probably. Well, I don't know. Maybe. It's so problematic, because if they sell them through any channel partners, it's hard for those channel partners to buy from us. Up until this point in time, it hasn't made any sense.

Are Dell and EMC potential merger candidates? I don't think so. The partnership came about because we've got the access to markets, and [they've] got the technology but can't ramp it.

We haven't stated [a merger] as a goal. And I think EMC is very happy staying independent. We don't need to join

each other, and if we did, I'm not sure what the benefit would be.

How is Dell working on standards other than through its membership in standards bodies? We're not only on them... we're trying to drive them. It's clear that as we do that, there are two or three major players that don't want that to happen very fast.

Why are some vendors hoping to slow down the process? They have their own proprietary technology, and it'll force them to give that up on behalf of an

industry standard, which will mean customers will have more choice and can shift from vendor to vendor or bring [multiple] vendors into their shops.

How does the iSCSI standard play into Dell's plans? Our plans are to introduce a product in our fourth quarter.

What will that be? An array or a network device? I really can't say yet.

Do you think iSCSI will overtake Fibre Channel for storage networking? Not right away, but over time, iSCSI is going to pose a big challenge to Fibre Channel. 50370



Q&A

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Microsoft



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Argentina to Vietnam, and now our team can
update them all from headquarters."

Viktor Portmann

Project Manager, Department of Foreign Affairs, Switzerland

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BRIEFS

EDS Postpones Q3 Earnings Report . . .

Electronic Data Systems Corp. delayed the release of its third-quarter financial results from last Monday to this Wednesday, saying that it was reviewing the value of the IT assets being used as part of its \$8.8 billion intranet contract with the U.S. Navy. Auditor KPMG LLP is seeking a charge against EDS's third-quarter earnings to cover a decline in the worth of the equipment that supports the Navy/Marine Corps Intranet.

. . . And Offers Early Retirement Program

EDS also said it's offering early retirement incentives to about 9,200 of its 53,000 U.S. workers. EDS expects about half of the eligible employees to accept the buyouts, although it noted that some of the vacated jobs would likely have to be filled again. The early retirement offer is part of a plan, disclosed in September, to cut another 15,000 to 20,000 jobs in the next two years.

EC Clears Oracle's Bid for PeopleSoft

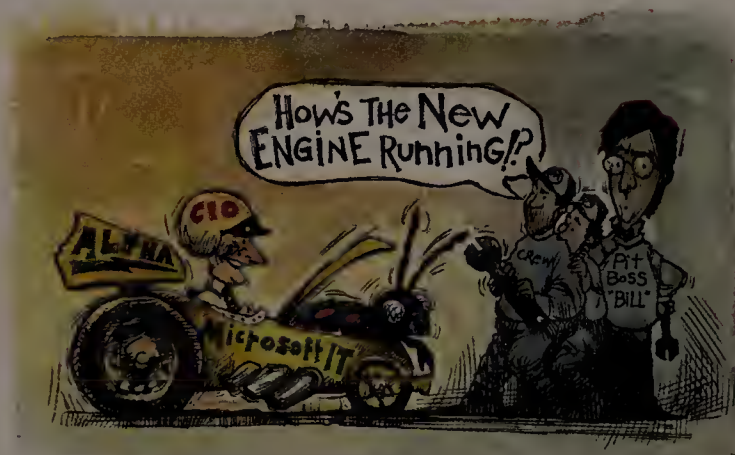
The European Commission has given Oracle Corp. the green light to proceed with its hostile takeover bid for PeopleSoft Inc., removing the last regulatory roadblock to a deal. The commission said it was unable to find "sufficient evidence of competitive harm" that would result from a merger. PeopleSoft said its board will review the decision's implications "in due course."

Short Takes

RED HAT INC. warned its Linux users about an e-mail hoax urging recipients to download purported software patches that actually contain malicious code. . . . Japan's Fair Trade Commission held an initial hearing with **MICROSOFT CORP.** over allegations that the company violated the country's antitrust laws.

ON THE MARK

HOT TECHNOLOGY TRENDS, NEW PRODUCT NEWS AND INDUSTRY GOSSIP BY MARK HALL



CIO Relishes 'Guinea Pig' Role . . .

. . . inside Microsoft because "I can realize value earlier." So says Ron Markezich, CIO for IT at Microsoft. But Markezich might easily be misconstrued as a senior executive on the vendor's quality assurance team. His staff is responsible for putting Microsoft tech-

nologies targeted for enterprise use into the company's production IT environment at their alpha stage, long before they're ready to ship. "I look at our IT organization as an extension of our product development team," Markezich says. Given his reliance on prerelease versions of products, you'd think his bosses would cut him some slack in delivering services to Microsoft's end users. Not so, he claims. "I don't feel like I get more slack," Markezich says, noting that his service-level requirements actually increased this year. That logic stems from the belief that early product adoption gives him a head start on improving system capacity, performance and reliability while keeping a lid on costs. Markezich cites his early deployment of Exchange Server 2003, which Microsoft began using well before the software's commercial release. He says he was able to eliminate 67 Exchange Server 2000 processing sites and consoli-

date the company's global e-mail system into seven sites running the newer software. That has helped Markezich cut \$100 million from what he calls "sustainer spend," the fixed IT costs for supporting employees — dropping the annual total to about \$300 million. His next big project doesn't revolve around Microsoft's core software. He's beginning to upgrade the company's 802.11b Wi-Fi infrastructure, most likely to 802.11g technology. He calls the project "the world's largest wireless WAN deployment" and says it should be done by June. That doesn't mean he's refraining from putting Microsoft's alpha products through their paces, though. In fact, Markezich acknowledges that sometimes Microsoft IT is the bottleneck on the company's delivery of new products. "A lot of the times a Microsoft product slips its ship date is because we did not sign off on it," he says. Now you know who to blame.

MATTHEW FAULKNER

CIW looks beyond alpha products . . .

. . . and slips its R&D work into "the office of the future." The Microsoft Center for Information Work on the company's Redmond, Wash., campus gives corporate users a glimpse of IT's misty future through a series of hands-on demos. "We're out past Longhorn," says Thomas Gruver, a group product manager who oversees CIW. The arrival of Longhorn, the next major release of Windows, may seem to be taking forever, but for Gruver, it's just around the corner. He's looking at technology that's a little further in the distance, such as a blend of networking and groupware technology that will let Tablet PC users share data immediately on a common conference room display. Gruver hopes to showcase that possibility to CIW visitors starting next year. A CIW highlight, the Ringcam, may soon become a Microsoft-branded product. It contains a half-dozen mini-cameras installed in a ring plus a directional microphone that can locate a speaker at a conference room table and project him on PCs or video displays during a multimedia conference call. Expect to, um, see it in 2005.

Forget Java, C# or C++ because . . .

. . . the next hot development language is Flash. Although Kevin Lynch, chief software architect at San Francisco-based Macromedia Inc., doesn't claim that you'll never need to program in anything but Flash again, he does argue that if you're creating Web-based applications that need graphical user interfaces — and which ones don't? —

2M Daily downloads of Flash Player

SOURCE: MACROMEDIA INC.

Flash is the ideal technology. Why? He says Flash "needs far less bandwidth" for downloading graphical pages because it updates only the parts of a page that contain new information as opposed to doing a full page refresh. The market size should also attract developers. Lynch estimates that 500 million PCs are equipped with Flash Player. Flash developers currently use Macromedia's J2EE-based Flex server software to compile Flash code. But a .Net version is in beta now and will likely go gold early next year.

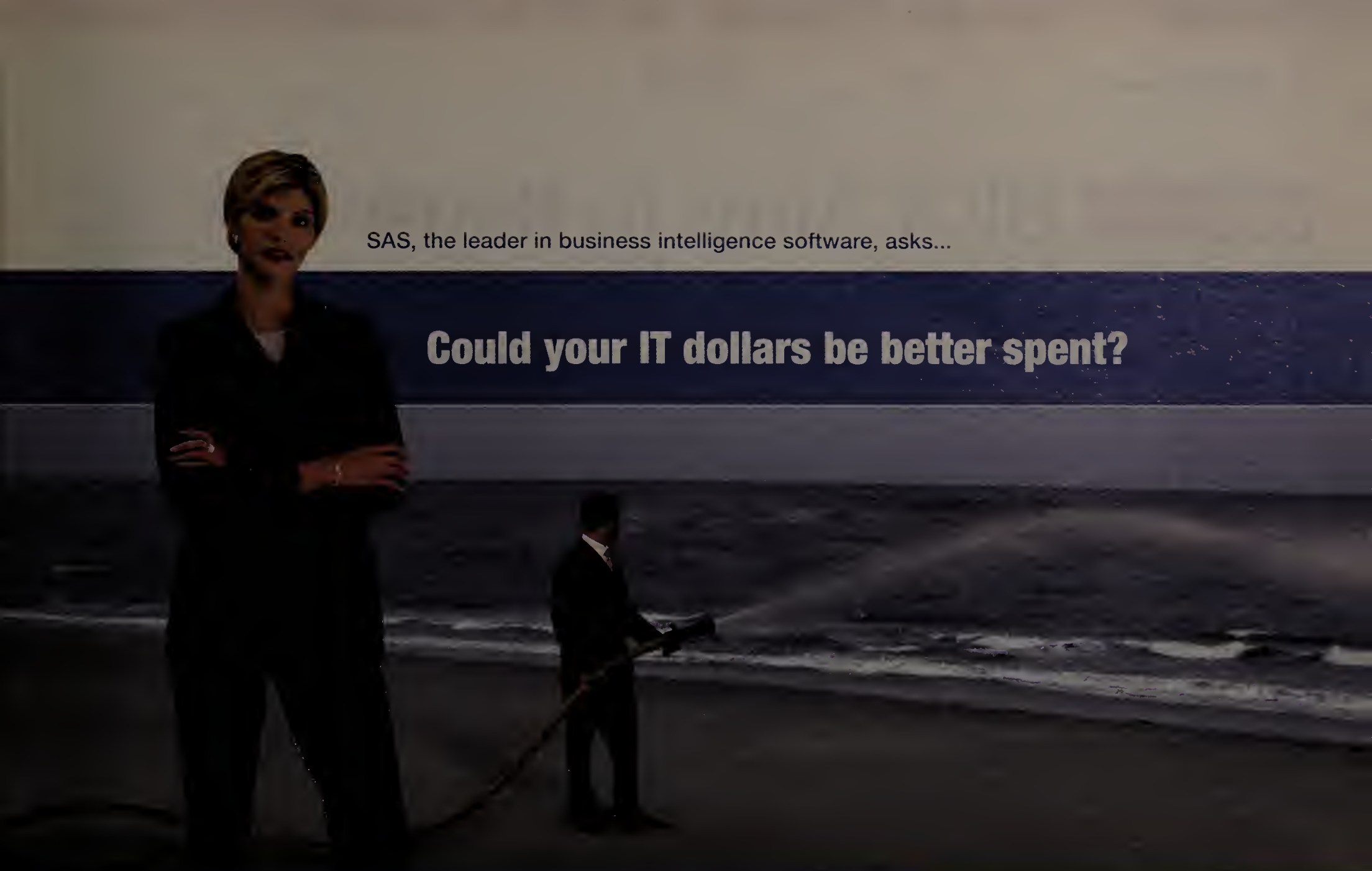
Faxes to use IP networks in a . . .

. . . new release of RightFax from Captaris Inc. in Bellevue, Wash. Version 9.0, available this week, includes an optional board from Brooktrout Inc. that slips

into the Captaris fax server. The board handles the electrical differences between an Ethernet network and the public switched telephone network, while the Captaris software smoothes out the protocol conflicts so a fax that's designed to be transmitted only over the phone network can use IP as its transport mechanism. Matt Shoening, chief operating officer at Captaris, acknowledges that few fax-over-IP installations exist now, but he insists that they'll be here someday because centralized IP-based network administration cuts costs. RightFax 9.0 also adopts Microsoft SQL Server as its data store, upping capacity from 1 billion faxes to a virtually unlimited number. ☎ 50369



"We're out past Longhorn," says Microsoft's GRUVER about R&D group.



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BRIEFS

Dell Installs SUSE Linux on Servers

Dell Inc. said it plans to preinstall Novell Inc.'s SUSE Linux operating system on several of its PowerEdge servers and fully support users of the software. Dell already preinstalls Red Hat Linux on its servers, but it had offered SUSE Linux only as an add-on until now. SUSE Linux Enterprise Server 9 will be available on the PowerEdge 1850, 2800 and 2850 models, with annual subscription fees starting at \$192 per CPU.

Nortel Again Delays Release of Results

Nortel Networks Corp. again delayed its release of restated financial results for 2003 as well as its numbers for the first half of this year. The Brampton, Ontario-based company was due to report the results by the end of October, but CEO Bill Owens said it was unable to meet the deadline "given the enormous details and complexity involved." Nortel set mid-November as its new target.

Nextel Extends IT Deal With Amdocs

Wireless carrier Nextel Communications Inc. has extended by two years an IT services contract under which Chesterfield, Mo.-based Amdocs Ltd. manages its billing and customer support systems. Reston, Va.-based Nextel said the contract, originally a nine-year deal signed in 2000, will now run through 2011. Financial details weren't disclosed.

Short Takes

The U.S. appeals court in Cincinnati vacated a preliminary injunction blocking Sanford, N.C.-based **STATIC CONTROL COMPONENTS INC.** from distributing chips it uses to clone Lexmark Inc.'s printer cartridges. . . . **CINGULAR WIRELESS LLC** completed its acquisition of **AT&T WIRELESS SERVICES INC.** after agreeing to divest itself of assets in 11 states.

BEA Aims to Boost WebLogic Business

Bundled solutions target vertical markets, IBM

BY HEATHER HAVENSTEIN

BEA SYSTEMS INC., looking to broaden its middleware business, last week took the wraps off a solutions framework that can help WebLogic Platform users build service-oriented architectures (SOA) for tackling common enterprise pain points like boosting customer service.

The move marks BEA's entry into the bundled technology solutions arena, traditionally a stronghold for rival IBM, and it is supported by several major software suppliers.

The framework is part of BEA's Liquid Computing initiative, unveiled at its user conference last spring. The bundled offering will use BEA's

WebLogic Platform, through its portlets and reusable service-oriented integration components called controls, to build SOAs for five common enterprise goals: customer service, employee service, service delivery platforms, trade processing and radio frequency identification capability.

The framework includes elements supplied by a slew of partners, including SAP AG, Business Objects SA, Documentum Inc. and Siebel Systems Inc., that add to the offering's architecture reference blueprint, workflow examples, best practices and services. BEA plans to provide frameworks for four vertical markets: telecommunications, financial services, manufacturing and government.

Oncology Therapeutics Network Corp. (OTN), a San Francisco-based distributor of specialty medical products, has

BEA's Plan

■ **BEA Solutions Frameworks** are designed to help extend the WebLogic Platform to build SOAs for customer service, employee service, service delivery platforms, trade processing and RFID.

■ **The program encompasses** telecom, financial services, manufacturing and government markets.

■ **Partners include** SAP, Documentum, Siebel, Hyperion, Business Objects, Interwoven, Comergent and E.piphany.

been talking to BEA about using the new frameworks to help it integrate pieces of its CRM and ERP packages via an SOA, said Rajan Jena, an enterprise architect at OTN. "We are particularly interested in a set of prebuilt components that are a one-time effort to create and can be reused," he said.

OTN already has used the Web services framework in BEA's WebLogic development platform to streamline the creation of a Web-based front end for its employee self-service portal. "It helps us do our round-trip development much faster than plain-vanilla J2EE," Jena said. For existing applications, OTN has used the framework to create a "fa-cade" of a Web services API call on top of legacy applications. Then the applications are exposed inside the portal.

Companies need guidance on many aspects of building an SOA, such as arranging Web services in the right order, said Ronald Schmelzer, a senior analyst at ZapThink LLC in Waltham, Mass. But although the new program is a forced response to IBM's success in the bundled solutions business, Schmelzer said BEA runs the risk of alienating its integration partners.

☎ 50409

MICROSOFT'S MOVES

Microsoft continues its push into the enterprise-level development market:

☎ **QuickLink 50329**
www.computerworld.com

Symantec Tries to Move Beyond Security Tools

BY JAIKUMAR VIJAYAN

Symantec Corp. last week outlined an "information integrity" strategy that users and analysts said addresses a growing need for a more holistic view of the operational and security risks that companies face.

But they added that whether the new approach succeeds will depend on how well Symantec, which is primarily known for its antivirus tools and firewalls, can execute on its wider vision.

As part of the initiative, Symantec will deliver products and services designed to give companies a full assessment of the risks and vulnerabilities they face and then enable them to act upon that information, said Enrique Salem,

the Cupertino, Calif.-based company's senior vice president of security.

For instance, a new version of Symantec's Enterprise Security Manager software that was released last week can help companies identify compliance problems related to regulations such as the Sarbanes-Oxley and Gramm-Leach-Bliley acts, Salem said.

Similarly, other products will let companies capture snapshots of the operational state of their servers, PCs, applications and operating systems, as well as information about their configuration settings and patch levels. Some of those capabilities are available now, but more will be added in the future.

"It's a model and a set of

policies that CIOs can use to manage their environment," Salem said. "It stresses the concept of understanding your environment, acting on the information and controlling it."

Symantec user Dave Jordan, chief information security officer for the Arlington County government in Virginia, said he thinks the idea makes sense for security managers. "Of course, some of this is just marketing, but it's not all marketing," said Jordan.

A Better View

At one level, Symantec's new initiative is aimed at moving the company into new markets now that its core security tools business is saturated, according to Jordan. But he added that the company's strategy could meet the need for a management dashboard that gives an overall view of the operational and security

landscapes inside companies.

Symantec's road map "provides a framework to help guide us," said Shaun Catlin, a senior systems analyst at Atlanta-based law firm Ford & Harrison LLP. "It's something that we knew needed to be done."

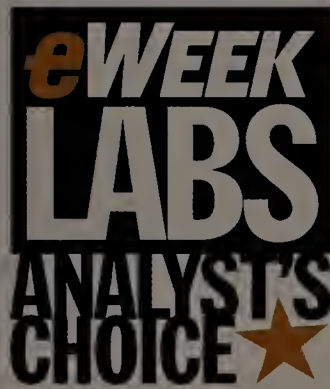
The alignment of information from the operational and security sides should give companies more control over possible risks, said Cory Ferengul, an analyst at Meta Group Inc. "What Symantec is saying is, 'You can't secure what you can't control, and you can't control what you don't understand.'"

Other vendors, such as IBM and Computer Associates International Inc., are making similar pitches, according to Ferengul. But, he added, "there's a lot of maturing that has to happen" before all of the required information can truly be integrated. ☎ 50416

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GLOBAL DISPATCHES

An International IT News Digest

Germans Assess Linux Deployment Costs

FRANKFURT

TOUGH ECONOMIC times in Germany have made Linux operating systems and other open-source products tantalizing to local businesses. Yet many remain hesitant to dump their Microsoft Corp. software completely, if only because it performs relatively well and nearly everyone in corporate Germany uses it.

That was the consensus of speakers at the LinuxWorld conference in Frankfurt last week. IDC analyst Wafa Mousavi-Amin warned users that although Linux software is basically free to acquire, it can be costly to deploy. "Businesses can see costs pile up quickly for support, maintenance and, in particular, training if they lack in-house knowledge," he said. "Each enterprise should carefully study whether the low fee to acquire the software will offset these other costs."

Among server operat-

ing systems in Europe, Linux grew from a 1% market share in 1999 to 9% in this year's third quarter, IDC said.

■ JOHN BLAU, IDG NEWS SERVICE

Cable & Wireless Continues Fire Sale

LONDON

LONDON-BASED network operator Cable & Wireless PLC agreed last week to sell its Japanese business, Cable & Wireless IDC Inc., to Softbank Corp. for \$133.3 million. But C&W will retain two international data nodes so it can continue to provide network services to and from Japan.

The sale of the Japanese unit continues C&W's retreat from an earlier plan to develop a \$3.5 billion global IP network. The company's fortunes plummeted in 2001, triggering a series of asset sales, thousands of layoffs, the dismantling of its global data services division and an exit from the U.S. and continental Europe except for continued

support of multinational customers. In January, C&W sold its U.S. Web hosting and IP services units to Savvis Communications Corp. in Herndon, Va., for \$155 million.

■ LAURA ROHDE, IDG NEWS SERVICE

N.Z. Regulator Blocks Westpac Outsourcing

AUCKLAND, NEW ZEALAND

WESTPAC BANKING CORP.'S plan to move its New Zealand mainframe processing to Australia has been scuttled by the Reserve Bank of New Zealand. A cutover to an IBM Global Services facility in Sydney was scheduled for earlier this month, but just a day before the move, the Reserve Bank pulled the plug.

Westpac's New Zealand division, based in Auckland, agreed to hold off on the move until the Reserve Bank finishes developing an outsourcing policy. The Reserve Bank said that it's concerned about outsourcing's potential effect on the bank's ability to continue operating in a crisis and that Westpac's proposal wasn't "sufficiently robust" to address that concern.

■ RANDAL JACKSON, COMPUTERWORLD NEW ZEALAND ONLINE

Compiled by Mitch Betts.

Briefly Noted

Advanced Micro Devices Inc. last week unveiled a \$249 PC for the developing world. The Personal Internet Communicator is a bare-bones PC with basic software, AMD's Geode GX500 embedded processor, 128MB of RAM and a 10GB hard drive.

■ TOM KRAZIT, IDG NEWS SERVICE

The government of Ghana recently signed an agreement with Data Centa Ghana Ltd. and Lexis Nexis Butterworths (Pty) Ltd. that will make the country's laws accessible online. Durban, South Africa-based Lexis Nexis Butterworths has similar projects under way in Uganda, Kenya, Tunisia and Nigeria.

■ JOHN YARNEY, IDG NEWS SERVICE

Sybase Inc.'s Financial Fusion Inc. subsidiary in Concord, Mass., has won a multimillion-dollar contract to set up an online banking system for Bank of China, one of China's largest banks.

■ SUMNER LEMON, IDG NEWS SERVICE

Users Call for Improved Wireless Management

BY MATT HAMBLIN
SAN FRANCISCO

At a conference held here last week by wireless industry trade group CTIA, IT managers, analysts and vendors all cited the need to find better ways to deploy and manage handheld devices as well as wireless services.

Vendors such as Sprint Corp. and Intel Corp. announced new managed services or upcoming technologies designed to help IT managers incorporate wireless devices into corporate settings. But it was obvious from the comments of some people at the conference that wireless rollouts can still be frustrating.

"The wireless industry is not taking a clear answer to the end user," said attendee Leonard Loventhal, referring

to both IT managers and business users. Loventhal is an executive vice president at Honolulu-based Hawaii HomeLoans Inc., which launched wireless data services for its 100 loan officers nearly three years ago. The process was very confusing, especially when it came to picking handheld devices, middleware and wireless service plans, he said.

Loventhal said that thanks to help from Sprint engineers, Hawaii HomeLoans has seen a solid return on its investments in Treo 600 handheld devices from PalmOne Inc. and wireless cards for the laptop PCs used by its loan officers. Both technolo-

gies help the workers do text and voice messaging when they're out in the field and in the office at costs lower than the prices companies typically pay for communications, according to Loventhal.

But Loventhal said that many of the larger mortgage firms he's familiar with haven't taken the same path because of the complexity of wireless deployments. "If it was easy to set this up, more companies would be doing it," he noted.

Sprint said it's beginning 90-day pilot rollouts of its Managed Mobility Services offering at 12 companies. The service is due to be launched early next year at a cost that will be "incremental" on top of Sprint's monthly wireless service fees of \$40 to \$80 per end user, said Rob Kermode, general

manager of the new service.

Kermode added that the work Sprint did with Hawaii HomeLoans is similar to the help it will provide to Managed Mobility Services customers. The offering supports devices running Windows or PalmOS and includes security management services such as data encryption and the ability to remotely disable devices.

Analysts said Sprint's move will likely be quickly matched by other wireless carriers. "Wireless rollouts are still complex, despite all the years of working on the problem," said Bob Egan, president of Mobile Competency Inc. in North Providence, R.I. "The complexity requires the operators to do some of the heavy lifting, so Sprint's announcement is a good first step."

Nikhil Deshpande, a business development director at Intel, said the chip maker is working on technology designed to let systems administrators use existing manage-

ment tools to bring wireless devices under the IT umbrella. Intel began a proof-of-concept deployment with the University of Arkansas at Pine Bluff in April, but Deshpande said the technology likely is three to five years away from commercial release. ☎ 50422

Tom Krazit of the IDG News Service contributed to this story.

MORE NEWS ONLINE

CA releases a tool for managing wireless LANs and identifying rogue users:

QuickLink 50397
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Correction

A story about a new device...
...that can be used to...
...technology... (C) 2004...
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LOVENTHAL says, "If it was easy to set [wireless] up, more companies would be doing it."



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Continued from page 1

ID Management

sign collaboration we are going to need won't tolerate a world where you have silos of identity [data]," Scott said in an interview prior to delivering his keynote speech.

GM's plan is a prime example of the increased focus some companies are putting on identity and access management as a way of cutting administrative costs and improving end-user access to applications, said Pete Lindstrom, an analyst at Spire Security LLC in Malvern, Pa.

The Boeing Co. is another large user that's in the midst of a long-term effort to give employees, customers and suppliers single-sign-on access to a range of applications and computing services.

Already, Boeing employees can use their corporate log-ons to access information on password-protected Web sites operated by benefits providers, said Michael Beach, an associate technical fellow at the Chicago-based company.

In addition, mechanics at a major airline customer of Boeing can use their regular usernames and passwords to ac-

cess electronic repair manuals stored on Boeing's internal networks. The aircraft maker is working to extend the capability to other airlines, he said.

The drastically reduced number of end-user accounts that need to be maintained and supported in such a federated identity management infrastructure has resulted in "substantial cost savings" and improved user productivity, according to Beach.

The federated system is built around single-sign-on software from Cupertino, Calif.-based Oblix Inc., although Beach said that Boeing had to do "quite a bit of customization."

Regulatory Pressures

Also playing a key role in driving consolidated identity management projects are new regulations, such as the Sarbanes-Oxley Act, that require companies to get a better handle on their application access-control capabilities, Lindstrom said.

"Regulatory pressures are driving a lot of what's happening in the security space," said Lindstrom. Implementing consistent identity and access management tools can give large companies such as GM

Expedia Unit Offers Single Sign-on for Travel Bookings

DENVER

Business travelers who use Expedia Corporate Travel's Web site can now access its online services from within their own intranets via a single-sign-on approach, using their regular usernames and passwords.

The Bellevue, Wash.-based unit of Expedia Inc. said at the Digital Identity World conference here that it has installed identity management technology that eliminates the need for customers to separately log on and authenticate themselves to its password-protected Web site.

Indiana University, which uses Expedia's site to book travel for its employees, is testing the single-sign-on feature. "The bottom line is that you don't need to keep logging into systems to get something done," said John Harner, director of travel services at the Bloomington-based university.

Expedia has installed Oblix's ShareID federated identity management software and has partnered with the software vendor to help users install the required single-sign-on starter kits on their systems. Simon Tam, vice

president of product development at Expedia Corporate Travel, said that existing users can get the Oblix technology at a discounted price.

"What it does is remove an impediment for business travelers," said Henry Hartevelde, an analyst at Forrester Research Inc. "It makes the booking process easier and saves the traveler time." Such improvements are needed because a substantial number of corporate users with access to Web-based travel services don't use them, he noted.

—Jaikumar Vijayan

and Boeing "a way of getting a top-down look at what legitimate users are doing with applications and of monitoring that access," he added.

GM's existing identity management infrastructure is "not an enterprise solution," Scott said, adding that functional units such as manufacturing and engineering control their own user identity information.

The global identity management architecture and governance model will use a combi-

nation of directory management technologies, such as the Lightweight Directory Access Protocol and Microsoft Corp.'s Active Directory, Scott said.

The company also plans to use identity federation technologies based on the Security Assertion Markup Language and Liberty Alliance Project standards to provide cross-domain application access to GM employees and external users. "A system that is not federated will be impossi-

ble for us to manage," Scott said. "It would kill us administratively."

GM plans to hire a prime contractor to install and manage the global identity management services once its existing IT services contract with Electronic Data Systems Corp. ends in June 2006, according to Scott. He wouldn't disclose a specific deployment schedule or a cost estimate for the project but said he expects the tab to be "in the millions" of dollars. **50417**

Toledo Schools May Resurrect Stalled PeopleSoft Implementation

BY MARC L. SONGINI

As it looks to upgrade its big-iron ERP system, the public school system in Toledo, Ohio, is also eyeing the resurrection of a \$4.3 million PeopleSoft Inc. accounting and human resources software installation it abandoned five years ago.

Toledo Public Schools needs to do something with the quarter-century-old ERP mainframe system, which still relies on a clumsy green-screen interface, said chief business manager Daniel Burns. He would like to see it replaced outright, or at least Web-enabled with a menu-based interface to help auto-

mate tasks such as processing purchase orders.

"You want to do it right and identify your risks and make sure you identify your costs," Burns said. That includes "not just the software purchase, but the training," he said.

One of the main drivers behind an outright replacement of the system is the fact that the application is written partially in Cobol, and it's difficult to find staff to support it.

Burns intends to devise two potential solutions. One might involve throwing an easy-to-use Web-based front end on the mainframe, hiding the back end's complexity from

users. Another option would be to add a graphical user interface and swap in a third-party ERP application running on Windows NT and an Oracle database. That would keep any future move to a new system transparent to the users.

“You want to do it right and identify your risks and make sure you identify your costs.”

DANIEL BURNS, CHIEF BUSINESS MANAGER, TOLEDO PUBLIC SCHOOLS

In the long run, Burns said he would like to implement a joint human resources and financials ERP backbone that could transmit student enrollment information seamlessly between those two systems. In addition, he said he would like any new system to support reporting and remote access and be able to extract human resources information, such as a teacher's profile, and put it on the Web for public review.

Since the Toledo school district has spent millions of dollars on the PeopleSoft software, there could be an advantage to resurrecting that plan.

In 1998, the district paid \$2.6 million for the vendor's accounting and human resources software and another \$1.7 million to an integrator for the actual rollout. However, budget cutbacks in 1999

killed the project. The district still owns the software, and the only way to recover its investment is to try to install it again. But doing that isn't necessarily a given, Burns said.

"I'm not going to rule out other applications," he said.

Whatever the Toledo school system does, the plan presented to the superintendent of schools will have to show cost savings that justify any new expenses. Burns said he would also consider staggering the implementation, installing one application at a time.

It's not uncommon for past multimillion-dollar investments to lie fallow, said Joshua Greenbaum, an analyst at Enterprise Applications Consulting in Berkeley, Calif. "With local and municipal governments, there seems to be a bad legacy of doing this." **50400**

Microsoft Recants Pledge for Exchange Add-on

Exec retreats from promise of 2005 ship

BY JORIS EVERS

Microsoft Corp.'s plans for its Exchange Server line have become even more uncertain than they were earlier this year when the company removed the 2006 "Kodiak" release of the messaging software from its product road map.

Microsoft officials are backpedaling on a May promise to ship an addition to Exchange called Edge Services in 2005. The company described the add-on as an intelligent message-transfer agent that offers security, spam and virus protection. It was the only announced release for the Exchange line beyond 2004.

"We remain very committed to Edge Services," said Kim Akers, a senior director in Microsoft's Exchange Server group. But, she added, "it is premature to talk about timing."

Analysts said that with no product road map, it's difficult for customers to make licensing decisions and plan upgrades. "Microsoft owes it to its customers to specify and deliver more or less on time the products and updates they say are coming," said Peter Pawlak, an analyst at Directions on Microsoft Inc. in Kirkland, Wash. The onus is on Microsoft to provide a true road map because its multiyear licensing

contracts include a maintenance program that covers software updates, Pawlak said.

Although Microsoft makes it difficult to anticipate which products are in the pipeline, it's delivering incremental updates to Exchange, said Teney Takahashi, an analyst at The Radicati Group Inc. in Palo Alto, Calif. "Microsoft is taking its time to develop these products right," he said. "I think that is more important than offering a road map."

User Timetables

Philip Colmer, IT manager at ProQuest Information and Learning Ltd. in Cambridge, England, said he's content with the Exchange Server 2003 system he upgraded to at the beginning of the year. "I am not too bothered at this point that Microsoft has not made any announcements," he said.

Microsoft is heralding Exchange Server 2003 this week at a user event in Orlando. However, the company isn't ready to publicly discuss a road map there, Akers said.

In a keynote at the Exchange Connections event, Dave Thompson, corporate vice president of Microsoft's Exchange Server products group, said the company has sold 55% more Exchange Server 2003 licenses in its first year than for the predecessor version in the same time frame. In addition,

the vendor received more than 175,000 requests to evaluate the product.

Still, Microsoft faces a challenge in getting customers to upgrade Ex-

change environments. The Radicati Group expects that Exchange Server 2003 seats won't exceed the number of Exchange 5.5 or Exchange 2000 seats until the end of 2005. **50327**

Evers reports for the IDG News Service.



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Microsoft Revises Antispam Plan

BY PAUL ROBERTS

After running into loud opposition to its first Sender ID antispam plan, Microsoft Corp. revised it and resubmitted it to the Internet Engineering Task Force (IETF) last week.

The new plan resolves disputes with Internet service providers and the open-source software community about the use of patent-pending technology, said Meng Weng Wong, chief technology officer at Pobox.com and a co-author of the revised proposal.

The standard combines two authentication standards — Caller ID, which Microsoft developed, and Sender Policy Framework (SPF), which Meng developed. Microsoft submitted a draft of Sender ID to an IETF working group in June, but the approval process became bogged down because Microsoft said it held patents for algorithms used to check PRAs, or purported responsible addresses, and planned to require that

users obtain licenses for Sender ID [QuickLink 49427].

The dispute produced some high-profile defections from the specification, including The Apache Software Foundation. America Online Inc. also opposed Sender ID because it wasn't compatible with early forms of SPF. AOL said it will support the revised version of Sender ID.

Microsoft expects the specification to be given "experimental" status by the IETF but doesn't know if it will be taken up for formal approval by the group, according a Microsoft spokesman.

Despite the changes, the new specification still might not satisfy open-source software advocates, who continue to be concerned about Microsoft's patent claims and the larger problem of proliferating intellectual property patents, Meng said. **50350**

Roberts reports for the IDG News Service.

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COMPUTERWORLD
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Hosted SAP Service Targets Midmarket

BY MARC L. SONGINI

SAP AG is rolling out a hosted service it hopes will appeal to midsize customers that can buy the software at a monthly fee as low as \$325 per user per month while avoiding much of the complexity of in-house installations.

SAP last week unveiled the managed offering, which officials said delivers pre-packaged bundles of software aimed at specific vertical markets, such as consumer goods and high-tech device manufacturers. The bundles use server and storage hardware in the data centers of SAP partner Hewlett-Packard Co. HP will also provide security and other technical support and services.

Previously, SAP primarily offered hosted applications only to very large companies with special requirements consistent with their scale, said Bill McDermott, CEO and president of SAP America Inc.

Dedicated Servers

Under the new plan, each customer gets a dedicated server in an HP data center. "A lot of customers in small to medium-sized businesses told me they don't like the one-to-many [hosting] model where their data is managed in an open environment," McDermott said. "They want a one-to-one relationship."

Gary Walden, SAP project manager at refiner C&H Sugar Co., said that if a single monthly pricing scheme had been available a year ago when his company was negotiating with SAP for a hosted service, "we would have looked at it very hard" as a way to save money. C&H, in Crockett, Calif., has used a full suite of hosted SAP applications since March.

The C&H hosted systems contract listed separate prices for implementation and consulting fees, among other things, Walden said. Nevertheless, the hosting service has helped boost C&H's operational efficiency without requiring extra IT support

staff around the clock.

For a large company like Halliburton Corp. in Houston, the new SAP offering sparks

no interest at all, said IT vice president Mike Perroni. The energy and construction services provider currently runs

SAP R/3 hosted by an HP data center and technical staff. "We only have one instance of SAP, and it's big," Perroni said.

Amy Konary, an analyst at IDC, said SAP separates itself from other hosted application

providers by targeting packages to specific industries. The managed offering will likely appeal to large SAP shops extending the software to subsidiaries or regional offices, she said. **50364**

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DON TENNANT

In Praise of Perseverance

FOR AS LONG AS I can remember, whenever anyone has asked me what trait I admire most in a person, I've been able to respond without having to ponder the question. It's perseverance. The faith, courage, strength and will it takes to refuse to give up even when the obstacles seem overwhelming define an attribute that, more than any other, enables people to leave this world a better place.

Last week, my dad lost his battle with ALS — the disease I've mentioned here before that's also known as Lou Gehrig's disease — after a three-year fight that epitomized what it means to persevere. Through all the unspeakable physical suffering, he remained emotionally strong and characteristically selfless, and he did it all without ever



DON TENNANT is editor in chief of *Computerworld*. You can contact him at don_tennant@computerworld.com.

could no longer press the keys.

Thank you for not giving up when the naysayers scoffed at the notion of making airline reservation systems accessible to anyone with a computer. After attending the Storage Networking World event in Orlando last week, I was on my way to a Kronos user conference that

was also being held there when I got the call that my dad was nearing the end in a San Antonio hospital. I turned my rental car around, headed straight to the airport and made a call to Linda Gorgone, *Computerworld's* miracle-working office manager, who booked a flight for me.

Upon my arrival at the airport, I checked in with an electronic ticket. That technology enabled me to get to San Antonio in time to thank my dad for everything he has done for me, tell him I love him and say goodbye.

There are no doubt countless stories of perseverance on the part of the IT professionals who made all this technology happen, and most will never be told. That perseverance will therefore never be fully or properly appreciated. I want it known that I appreciate it deeply.

Finally, a note of thanks to everyone who wrote with such kind words in response to my previous references to ALS. This note from an IT manager in Arizona whose wife has ALS was especially touching: "I have never met anyone with ALS that was not a sincerely good person," he wrote. "I'll bet your dad was a wonderful man."

Yeah, he was. And he was clearly in very good company before he died. What's heartening is that he's in even better company now.

☎ 50375

Don Tennant

DAN GILLMOR

Flawed Vote Could Give IT A Black Eye

IT'S LESS THAN two weeks before the 2004 elections as I write this, and I'm going to go out on a not-very-long limb with a prediction. Who's going to win the presidency is anyone's guess, but it's a no-brainer to say ahead of time that we'll look back on this as another messy election, in a technological sense.

Many of the electronic voting machines in use this year are flawed. Some are simply untrustworthy. It's the result of a screw-up that shouldn't have happened in the first place and must not be allowed to occur again.

Why is this relevant to the IT community? Because the crummy voting technology is ultimately an indictment of IT, not just of the voting machine companies and sloppy (or worse) bureaucrats.

The 2000 presidential election was almost a tie. The narrow margin brought to light a host of problems with punch-card voting machines, which deserved the garbage bins into which many were tossed.

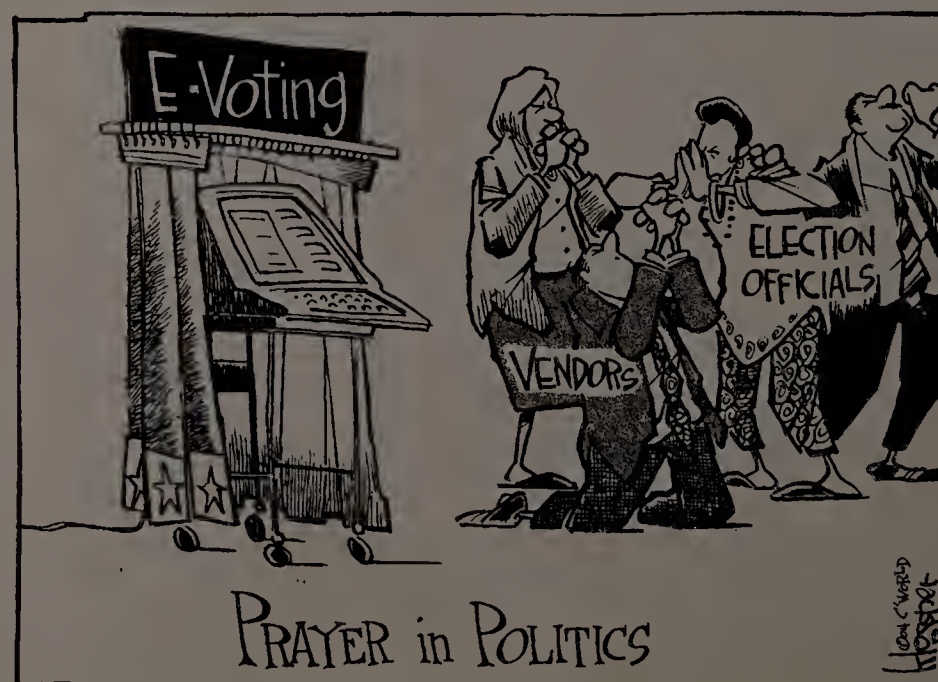
Congress understood that there was a crisis — of technology, of voter confidence and, ultimately, of our very system of selecting governments. But lawmakers launched more money than brainpower at the problem. The result was the Help America Vote Act, which encouraged state and local voting officials to spend wildly, and too quickly, with not nearly enough due diligence.

Among the worst flaws was an astonishing omission. There was no requirement that touch-screen voting machines come with a verification method like that of automated teller machines: a paper printout.

The voting machine companies, and their too-credulous customers in government, pooh-poohed the matter. One Florida official said the voting totals



DAN GILLMOR is a columnist at the *San Jose Mercury News* and author of *We the Media: Grassroots vs. Big Media by the People, for the People* (O'Reilly Media Inc. 2004). Contact him at dgillmor@mercurynews.com.



were verifiable because, well, you could just ask the machine to repeat what it had told you. Good grief.

Voting activists might have been less worried had they and many concerned computer scientists not uncovered a host of problems with the software in several of the most widely sold machines — including security flaws that tech professionals found almost literally beyond belief. But despite the ongoing whacks to their credibility, the machine manufacturers have continued to insist that all is well.

What has made the situation worse yet is their black-box approach. They insist that the source code is proprietary, and unless forced by law, they won't even show it to government officials. One e-voting system vendor, Diebold, went so far as to launch legal threats against some students who posted internal memos on the Web that the company found embarrassing; thankfully, a federal judge ruled against Diebold.

Only one state, Nevada, required a voter-verifiable paper trail this year. California will require one in 2006, and some other states are also moving toward such measures.

But a better answer is to bite the bullet, write off the billion-dollar-plus investment to date — and start over. We need open-source voting software and much better controls over the companies selling the machines.

I'd like to see IT people become more active in the voting system. They could be poll watchers in the near term, but in the long run, they should take the lead in fixing a badly flawed system.

There's not much at stake here — just democracy. **50248**

MICHAEL H. HUGOS

'Hi, I'm From IT, and I'm Here to Help'

MY COMPANY has a hard time maintaining its profit margins. Customers can buy what we sell (stuff like paper cups, plastic spoons, paper towels, mops and floor wax) from lots of other companies. The prices we can charge are always being driven down.

So how do we avoid having our profits squeezed to nothing? IT helps. We

start when one of us walks into a business meeting and says, "Hi, I'm from IT, and I'm here to help." The business people in my company are glad to hear this because my IT staffers are becoming masters of the 80% solution: We identify the repetitious things the business people do. As the company grows, such routine work (typically 70% to 90% of what they do) is overwhelming these users. The IT group is learning to design and quickly roll out simple systems that automate this routine work. These systems are cheap and quick to build because we never try to automate anything that isn't routine.

I see this as a major paradigm shift. For the past 30 years or more, people in IT have dreaded questions like, "Yes, but what about this?" or, "Can your system handle that?" Those comments always focus on exceptions to the general rules that a system is built to handle. Often, they have the power to stop new systems dead. They cause IT people to add complexity and ex-



MICHAEL H. HUGOS is CIO at Network Services Co., a distribution cooperative in Mount Prospect, Ill., that sells food-service and janitorial supplies. He is the author of *Building the Real-Time Enterprise: An Executive Briefing* (John Wiley & Sons Inc., 2004). He can be reached at mhugos@nsconline.com.

pense to otherwise simple systems in order to handle exceptions that happen only once in a while.

In the past, such comments were often voiced by people who didn't want computers anyway and who were motivated to come up with ways to delay or stop a rollout of new systems. Times have changed. Older people have gotten used to computers, and younger people can't imagine living without them. And everyone's workload has doubled or tripled.

There's no longer a need to build complex systems to appease obstructionists, because there aren't many

of them left. And since workflows change quickly and the most complex workflows change the fastest, why spend a lot of time automating them? Instead, learn to see complexity as combinations of simple, repetitive tasks and automate the simplest and most repetitive of them.

Figuratively speaking, people in my company are often too busy mopping

to fix the leak. So we in IT build cheap, simple systems to do the mopping and free people up to figure out why the leak is happening and how best to fix it. Once freed from the burden of routine tasks, they have time to do root-cause analysis and fix problems at the source. They also have time to be more responsive to unique customer needs. If we serve those customers well, they'll do business with us again.

The company wins in two ways. First, there are increased operating efficiencies and cost savings that come from eliminating recurring problems. Then there are the benefits of attracting and retaining customers with unique needs — and such customers are often the most profitable ones. These wins happen because simple, stable and scalable systems hum away in the background, handling more and more of the routine transactions. That frees up people to focus on the nonroutine and to find the profit opportunities that are hidden there. This is how IT helps my company thrive. **49717**

WANT OUR OPINION?

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READERS' LETTERS

Programmers Can Learn From Mechanics

I AGREE WITH DON TENNANT'S final comment in his "Handicapped Thinking" column [QuickLink 49904] about the e-mail from a Linux supporter regarding auto mechanics. It does auto mechanics a great disservice to assume that a failed programmer could be a successful mechanic. A programmer can take a trial-and-error approach to solving a programming problem, but doing the same to solve a problem in an auto is far more costly. The mechanic who misdiagnoses a clunking sound and replaces a transmission when a bad universal joint was making the noise will soon be looking for a new job. He might make it as a programmer if the u-joint was the second thing on his list of possible problems.

Morris Campbell
Systems manager, Norfolk
Department of Human
Services, Norfolk, Va.,
Morris.campbell@norfolk.gov

IT'S A SHAME society undervalues, and often disrespects, the

excellent tradesmen, craftsmen and others who may have been trained on the job. I had a two uncles who worked from grade school to an old age. One had a third-grade education, and at one time he may have been the best mechanic in St. Louis. The other completed some college. He was an excellent small contractor and factory mechanic, and his business skills made a lot of money for his employer. What a shame our society doesn't value skill and substance over the paper freely passed out at our schools.

Jerry W. Hubbard
Communication service
supervisor, St. Louis

DON TENNANT seems to misunderstand the comment, "Heck, if I had cranked out this kinda crap when I was a junior programmer, I'd be an auto mechanic now." It seems obvious to me that this simply means that people who don't write quality software could perhaps find another field in which they could produce a higher-quality product. I

don't find it disparaging to auto mechanics at all. It's just an assertion that many Microsoft engineers would be better served to find another line of work.

I personally don't blame the engineers for low-quality Microsoft software, however. I blame the culture and processes of the company as a whole, just as Bill Gates did in his e-mail missive on trustworthy computing a few years ago.

Greg Bledsoe
Senior network analyst,
Columbus, Ga.

Job Hunt Peeves

SINCE GETTING DOWNSIZED from a Big Five consulting firm two years ago, I have been on numerous interviews and have a few pet peeves of my own ["Hiring Horrors," QuickLink 49558]. The biggest is being asked to walk the hiring manager through my résumé. This translates as, "I didn't have time to read your résumé, so I have no idea who you are or what you've done." I've spent hours researching the prospective employer. I am fully

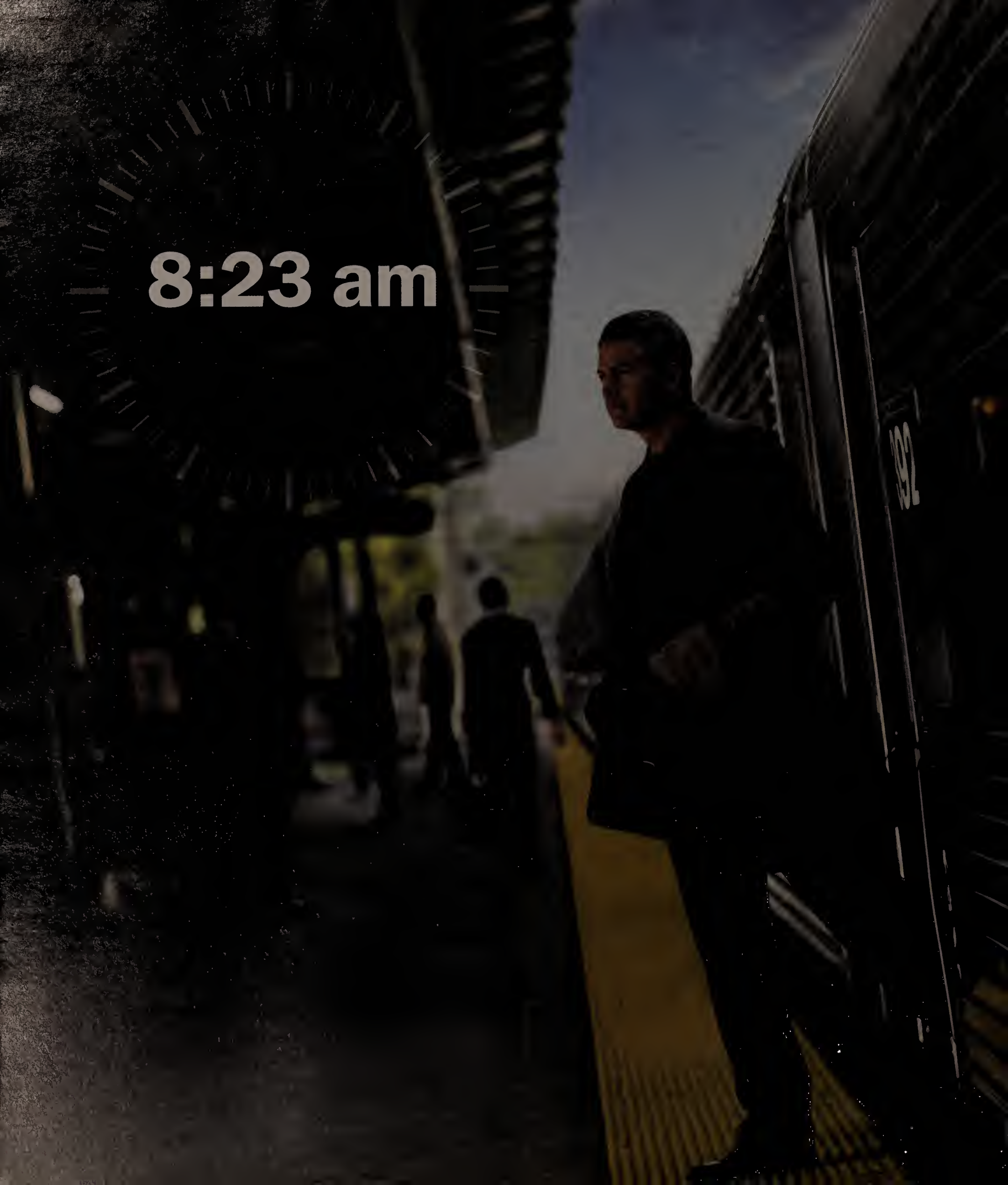
prepared to talk about what I can do, but I never get a chance to do so. Other peeves are interviews with everybody I could possibly come in contact with, even after the manager realizes the job isn't a good fit, and insulting salary offers. When I was a hiring manager, the goal was to get the best person for the job at fair market value. Hiring an employee was perceived as making an investment, not bargain-basement shopping. It's an old maxim but true — you get what you pay for.

Fiona M. Lamb
Denver

COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 1 Speen Street, Framingham, Mass. 01701. Fax: (508) 879-4843. E-mail: letters@computerworld.com. Include an address and phone number for immediate verification.

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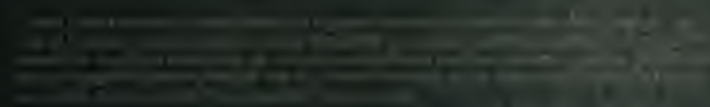
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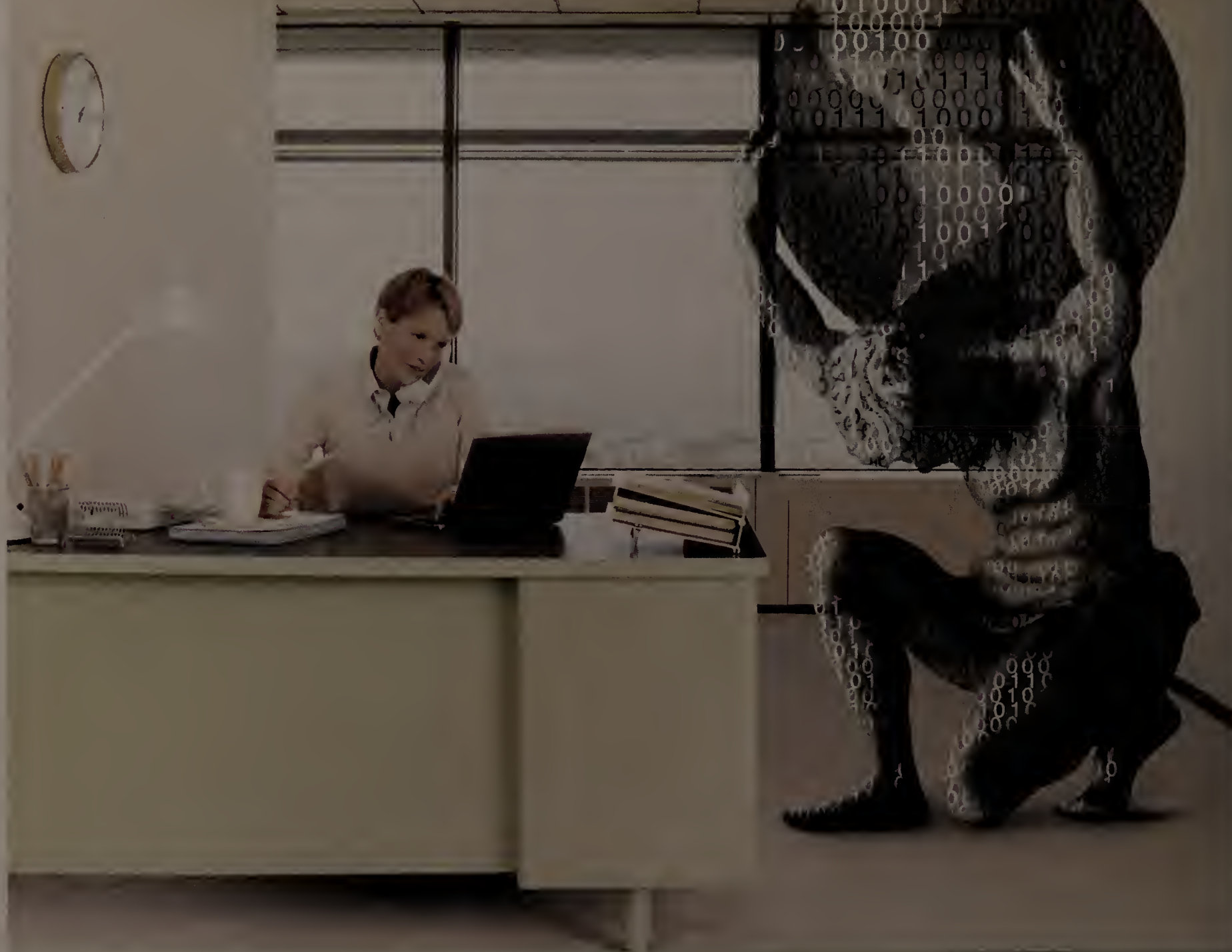
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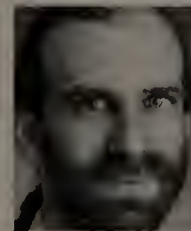
Error Checking and Correction

Error checking and correction is the process of detecting errors during the transmission or storage of digital data and correcting them automatically. This usually involves sending or storing extra bits of data according to specified algorithms. **Page 30**

SECURITY MANAGER'S JOURNAL

Lack of Control Becomes Nightmare

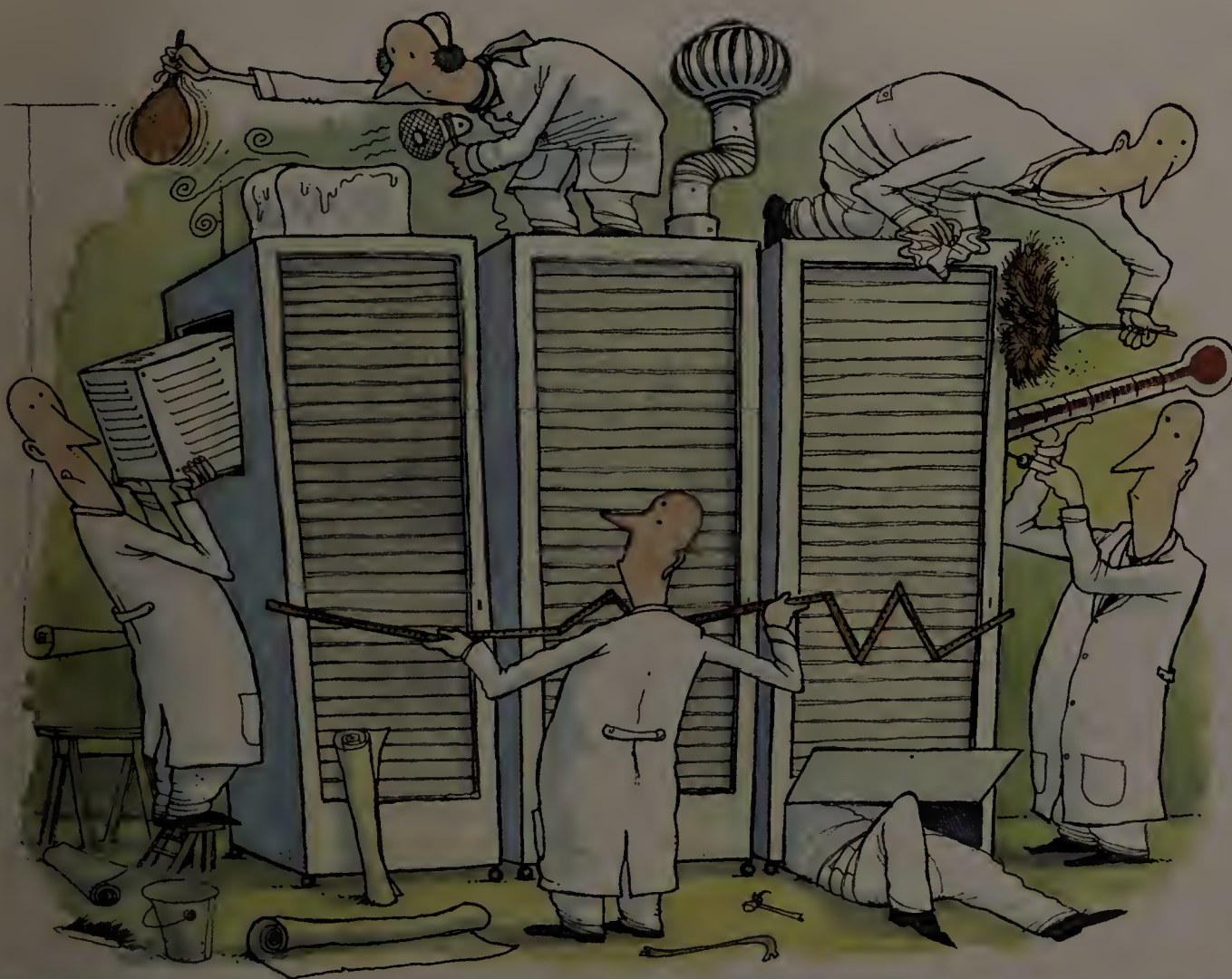
Not having complete control of network security operations is a nightmare for C.J. Kelly, and now she has to find out what's really going on in the network. **Page 32**



OPINION

Make Vendors Pay For Security Flaws

Bruce Schneier says that the ultimate answer to security vulnerabilities is to make software vendors liable for the holes in their products. **Page 34**



DAVID CLARK

TAKE A STROLL through almost any data center today, and you will see pretty much what you would have seen a decade ago — square white tiles over a raised floor, bright florescent lights, little red fire alarms everywhere and rows of faintly humming computer equipment and air conditioning gear.

But this familiar scene masks some big changes in the way that data centers are built, as well as changes in computer technology and an evolution in what data centers are expected to accomplish. Ultradense server racks, the move to distributed and virtual processing, a requirement for instant fail-over, and new requirements for IP telephony and voice over IP are all driving changes above and below the raised floor.

Keeping Cool

Perhaps the greatest challenge in data centers today is how to keep those rooms — and the components within them — cool. Facility designers used to apply a simple rule of thumb: If the room was going to be x thousand square feet, it would need y tons of air conditioning. Or designers relied on equipment “nameplates” that listed peak power usage based not on cooling requirements but on safety requirements.

Those simple approaches don't work well today. They're likely to result in expensive overcooling of the overall facility, even as temperatures in small areas — such as inside a rack of blade servers — soar.

Ron Hughes, president of California Data Center Design Group, says the typical data center last year consumed 40 watts of power per square foot and used server racks that consumed 2 kilowatts each. This year, he's designing a facility that will average 120 watts per square foot and support racks that use 4 to 5 kilowatts.

“And if you look at the latest projections from HP, Sun, IBM, Dell and so on, they are predicting that racks will be 15 to 25 kilowatts for blade servers,” Hughes says. “The overall direction is toward smaller footprints, increased capacity, increased power and cooling requirements. I've seen projections for blade servers as high as 30 kilowatts per rack, and that's well over 500 watts per square foot.”

The issue at those levels isn't cooling per se, but

Continued on page 26

Four Trends Driving New Data Center Designs

- 1 Need to support ultra-dense server racks
- 2 Move toward distributed and virtual processing
- 3 Requirement for instant fail-over
- 4 Migration to IP telephony and voice over IP

Data Centers Get a Makeover

By Gary H. Anthes

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5

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Continued from page 23

affordable cooling. Hughes says that at 40 watts per square foot, it costs \$400 per square foot to build a data center, or \$20 million for a 50,000-square-foot facility. But at 500 watts per square foot — which Hughes says we could see by 2009, well within the lifetime of any data center built today — the amount of air conditioning, uninterruptible power supply (UPS) units, power generators and related gear jumps dramatically. Construction costs soar to \$5,000 per square foot, and the same data center busts the budget at \$250 million, he says.

The cooling challenge is compounded when a data center switches to emergency backup power. UPS units kick in instantly in a power failure, so there is no interruption in the flow of electricity to computers. But there is often a delay of 15 to 60 seconds for generators to restart the cooling units. That hasn't been a problem in the past, but for some newer equipment, temperatures can rise fast.

The temperature in a data center that averages 40 watts per square foot will rise 25 degrees in 10 minutes with cooling shut off, says Bob Sullivan, a senior consultant at The Uptime Institute Inc. in Santa Fe, N.M. But in places where power consumption is 300 watts per square foot, the temperature can rise that much in less than a minute.

The solution, Sullivan says, will be uninterruptible cooling that works the same way as uninterruptible power. That would involve putting air fans, and possibly systems that pump chilled water, on a UPS, he says.

Distributing the Data Center

Many companies today have just one big data center, or maybe two or more depending on the locations of users. But an abundance of cheap "dark" fiber, plus new virtualization software, is enabling a much more flexible, dynamic and user-transparent distribution of processing workloads.

For example, the Federal National Mortgage Association has two data centers, including one designed to be mostly a contingency site. Fannie Mae is building another data center to replace the contingency center and will then evolve both centers to a "co-production environment," says Stan Lofton, director of Wintel systems at the Washington-based mortgage financing company.

"We have a few applications today that we consider dual-site production, in operation all the time, so if we lost one site, it would be seamless to the

Building a Data Center: Soaring Costs

	TODAY	2009
Watts per square foot	40	500
Cost per square foot to build and equip a data center	\$400	\$5,000
Cost for a 10,000-square-foot facility	\$4M	\$50M

SOURCE: CALIFORNIA DATA CENTER DESIGN GROUP

user," he says. "Over time, we see more and more applications going that way."

That approach helps avoid single points of failure and makes disaster recovery faster and easier, says Joshua Aaron, president of Business Technology Partners Inc. in New York. "And not having to consolidate all your real estate in one location allows you to negotiate better deals in off-the-beaten-path areas."

That approach is leading some companies to bring disaster recovery in-house, rather than using a service from another company, Sullivan says. "You're seeing those disaster recovery facilities used also for development, testing and co-production," he says.

Co-production data centers carry with them the requirement of "continuous availability," says Terry Rodgers, a facilities manager at Fannie Mae. Increasingly, users are saying they can't wait a few hours or even a few minutes to bring up their systems at a backup site if the main site is knocked out by a fire or some other disaster. Fail-over has to be instantaneous, and that's both a software and a hardware issue, Rodgers notes.

Redundancy Times Two

Continuous availability requires a Tier IV data center, as defined by The Uptime Institute. Tier IV requires two independent electrical systems, all the way down to dual power cables into the computer hardware. Fannie Mae's new data center will be built to Tier IV specs and will offer "real-time backup," Rodgers says.

Visa U.S.A. Inc. has two 50,000-square-foot-plus data centers in the U.S., one on each coast. Either can instantly back up the other. Each center is rated as N+1, which means that every system with n components has at least one hot spare. For example, if a data center has six UPS modules in use, there will be a seventh standing by under the N+1 principle.

Within a year, Visa will migrate to a 2(N+1) architecture, in which every system is completely duplicated. In the above example, the data center would have two active UPS systems, each with separate cables to the equipment and each with N+1 redundancy.

"Ten years ago, N+1 allowed for a component failure," says Richard Knight, senior vice president for operations at Foster City, Calif.-based Visa. "Now, with technology changes and everything dual-powered, the ultimate design is 2(N+1). It's dual systems versus dual components."

In addition to offering the highest levels of fault tolerance, 2(N+1) will enhance flexibility because an entire system can be taken down for maintenance, says Jerry Corbin, Visa's vice president for central facilities. But, he says, "it also tremendously increases the complexity to be managed."

Communications Buildup

Networking issues are also changing data center designs, and storage-area networks pose special challenges, Aaron says. "SANs typically attach to Fibre Channel switches, although IP SCSI is making inroads in the market," he says. "Today's Fibre Channel switches require their own infrastructure and must be planned for during data center design. They take rack space and consume a lot of power."

Indeed, communications considerations will increasingly influence data center design, Aaron predicts. "With the proliferation of voice over IP, the data center now has to support a very mission-critical application: voice," he says. "How do you provide power to

the IP phones? How do you handle 911 service? How do you provide voice mail? How do you or will you support unified messaging?"

Power-failure relays to support 911 service haven't traditionally been part of a data center design, but they will be, Aaron says, as will backup power gear for voice gateways, media gateways and IP phones.

Unified Management

IP networks bring relief as well as challenges. Data centers are starting to connect environmental monitoring sensors to the data network so both facilities managers and IT managers have a unified view of the health of all systems.

Facilities equipment manufacturers use common data-exchange standards and network protocols to help bridge the facilities and IT worlds. For example, NetBotz Inc. in Austin sells IP-addressable wireless "monitoring appliances" that can be fitted with security cameras, microphones and sensors for humidity, temperature and airflow. They can be read remotely or send alerts by e-mail.

"The cost, size and complexity of these kinds of things has come down," Aaron says. "Plus, they are now integrated with the network so you can see them across the WAN in a remote location." **Q 49777**

MORE ABOUT DATA CENTERS

Visa extends monitoring: The company is moving toward end-to-end service-level monitoring in the data center — and beyond. **QuickLink 49773**

Cool tools: Here are four ways engineers are dealing with balancing data center heat loads:

QuickLink 49775
www.computerworld.com

HP's Experiment in Cool

ADVANCED TECHNOLOGY intended to cool data centers in just the right spots is under development at Hewlett-Packard Co. "The old approach was to keep the room at a constant temperature, much like an auditorium," says Chandrakant Patel, distinguished technologist at HP Laboratories. "But now data centers are starting to look like Carnegie Hall, with 100 people per seat."

In an approach that HP calls "smart cooling," there are temperature sensors everywhere in the data center, including six to eight in each server rack. HP even has robots with sensors on them that travel about, looking for unanticipated hot spots. The sensors send data over the network to an analysis and control pro-

gram that dynamically models the data center based on preset policies and the principles of thermodynamics.

The system uses the results of the modeling to direct vents and blowers so that cool air is sent just where it's needed. The control software can also redistribute processing workloads within the data center or across a network of data centers. HP says smart cooling will reduce energy costs for cooling by 25%.

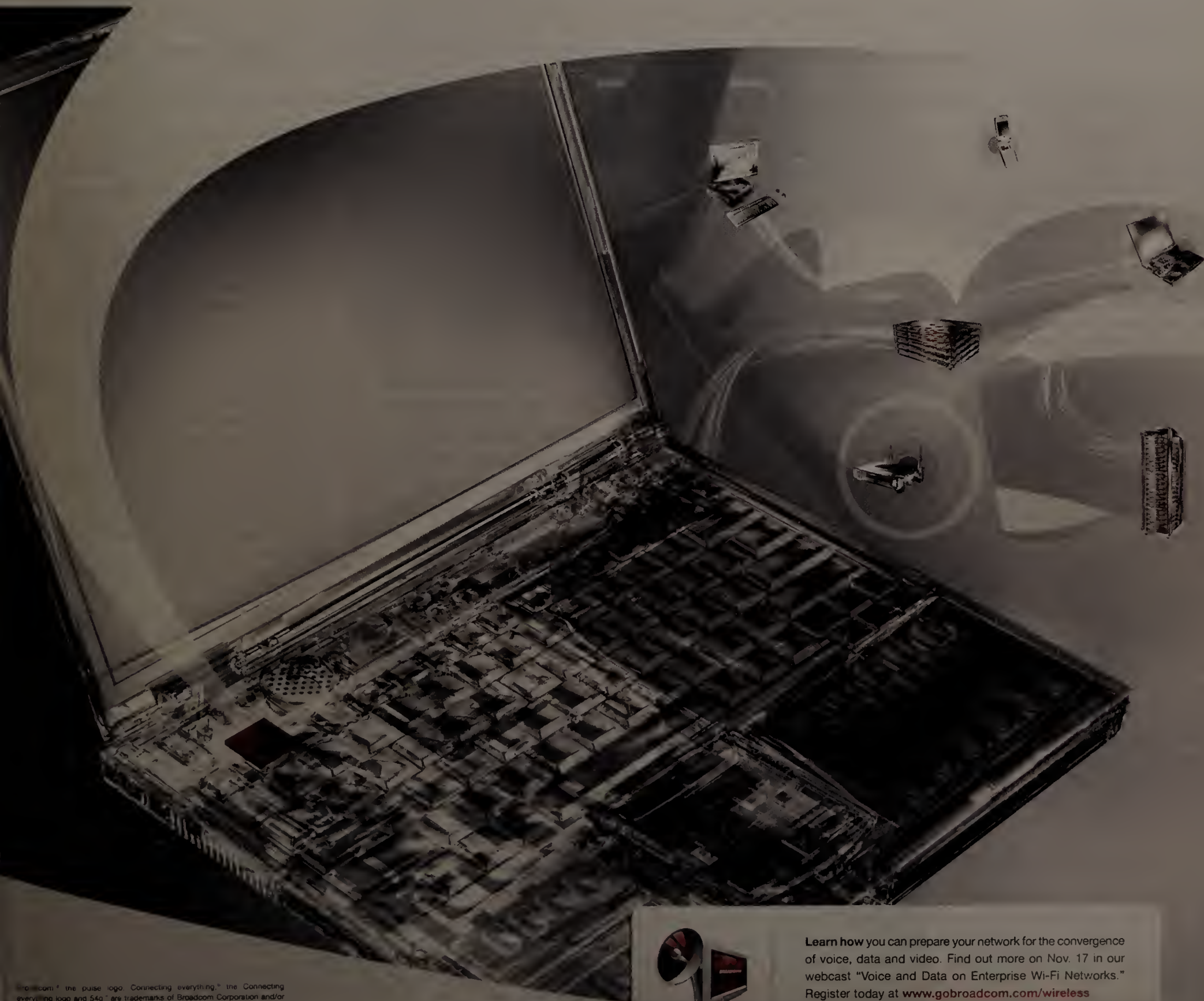
HP currently offers professional data center design services, and it plans to add the hardware components for smart cooling systems when it announces partnerships with vendors of the technology, according to Patel.

— Jeff H. Johnson

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¹ NPD Group, July-August, 2003, U.S. retail shipments

OpenVMS SURVIVES AND THRIVES

The 'legacy' operating system maintains a substantial base in large organizations, and there's promise of new interest as it moves to 64-bit Itanium. **By Drew Robb**

OpenVMS was supposed to have died a slow and unheralded death sometime during the 1990s. Labeled passé by analysts and "legacy" by Windows and Unix enthusiasts in the wake of the distributed computing boom of the '90s, it hardly merits a mention in the computer press. Yet the operating system has stubbornly refused to go away.

Digital Equipment Corp. developed the Virtual Memory System in 1977 for VAX hardware as a multiuser, multi-tasking operating system. (Digital was eventually absorbed by Compaq Computer Corp., which merged with Hewlett-Packard Co. in 2001.) OpenVMS is a later version that runs on VAX and Alpha and will soon be available on HP Integrity servers, part of the company's 64-bit Itanium line.

One of the perceived drawbacks contributing to the aura of doom around OpenVMS was the operating system's tie to expensive proprietary hardware — first VAX, then Alpha. But now that Integrity servers — which also support HP-UX, Linux and Windows — run OpenVMS, its users will benefit from the same manufacturing economies of scale that users of those other operating systems do.

Even now, however, annual OpenVMS-related hardware, software and services earn in excess of \$2 billion annually for HP, and more than 400,000 VMS systems are still operating worldwide, according to a source at the company. Those numbers are backed up by Ken Farmer at OpenVMS.org, an independent Web site dedicated to OpenVMS users. He estimates that there are 10 million users worldwide and hundreds of thousands of installations of OpenVMS.

"There were about 456,000 VMS systems almost a decade ago, and after

a slight yearly decline for a few years, the operating system is now staging a revival," says high-performance computing guru Terry Shannon, a 22-year VMS veteran in Amarillo, Texas, who wrote the original VMS user guide. "Some of the folks who drank the Windows Kool-Aid and dumped VMS for Windows are now coming back."

When the Chips Are Down

OpenVMS/Alpha systems are commonly used by financial services, health care, manufacturing and aerospace companies, as well as utilities and state lotteries and other government agencies. HP says that 50% of major telecommunications providers and 80% of chip manufacturers use OpenVMS. Users say that they've stuck with OpenVMS because the operating system has provided all of the features they've needed, along with tested stability.

"We chose VMS due to reliability, availability, solid performance, the fact that it's mature and proven, and the stability of both the hardware and software," says Joseph Stenz, senior systems programmer/administrator at



“Our intention is to keep on using VMS until doomsday, as long as it keeps innovating and providing the highest standards in the IT world.”

DANIEL SANCHEZ REINA,
IT MANAGER, SONY CORP.'S
BARCELONA CENTER FOR
DISTRIBUTION

Albert Einstein Healthcare Network in Philadelphia. "There were some IBM mainframe and Windows solutions offered, but they didn't justify moving off of Alpha."

Einstein Healthcare will be installing a new AlphaServer ES47 this fall. It will be the third VMS/Alpha system within the 6,000-employee campus encompassing six major facilities. Einstein Healthcare also has over 100 Windows NT/2000 servers in an enterprise LAN/WAN (frame relay/Asynchronous Transfer Mode) environment.

Einstein Healthcare's Alpha-based systems include an ES47 Model 2 OpenVMS machine with two 1-GHz Alpha EV7 processors with 1.75MB Level 2 cache (four-processor capable) and 4GB of error checking and correcting memory. There's also an HP AlphaServer ES47 Model 2 OpenVMS enterprise server with a memory expansion up to 8GB, and an HP AlphaServer ES47 Model 2 OpenVMS enterprise server with memory expansion up to 8GB and optional RAID memory support.

Einstein hasn't clustered its Alpha environment, which also includes two

Move to Itanium... or Not

MANY ORGANIZATIONS USING VMS have a mix of Alpha as well as aging VAX hardware to deal with. So, with HP porting VMS to Itanium 2 for its Integrity server line, companies must decide which way to go. Soldier on with VAX despite the lack of reseller support and a diminishing pool of spare parts, or port to Alpha? Retain Alpha systems for the seven remaining years HP promises to support them (HP says it will likely support Alpha until at least 2011), and then see where to go from there? Or move everything to Ita-

anium and scrap a significant investment in VAX/Alpha-based VMS systems? Here are a few rules of thumb for the various scenarios.

■ **Stay with VAX if you're constrained by hardware or software issues** such as lost source code, special I/O hardware or large amounts of handcrafted assembler code.

■ **"Consider emulation of VAX — preferably on an Alpha/VMS platform, not Windows — if the performance characteristics and availability requirements of the application allow you to,"** says Colin Butcher,

a systems architect at XDelta.

■ **Move from VAX to Itanium for "general purpose" applications without hardware constraints, but don't rush it.** Spend time testing carefully, especially in high-availability and business-critical environments. But if you're moving to Itanium, then port from VAX to Alpha first in order to debug any 32-/64-bit problems and get the code through the compilers.

■ **If your Alpha machines have room for growth in terms of performance** (for adding CPUs or memory), then staying with them while you spend a couple of years planning and testing your port makes sense.

HP MSA1000 Fibre Channel storage arrays.

The ES47 supports several applications that demand reliability and high availability: Siemens Document Imaging 23.4 for billing purposes; IDXtend 9.0 for physician billing and scheduling; and McKesson/HBOC Trendstar for decision support and cost accounting.

Einstein Healthcare isn't the only user gravitating toward Alpha. Annual sales of Alpha hardware add up to several hundred million dollars, according to HP.

Rising to the Challenge

A major impetus behind the VMS/Alpha revival appears to be its performance during the Sept. 11 attacks on New York's World Trade Center.

According to David Freund, an analyst at IT research firm Illuminata Inc. in Nashua, N.H., several financial services businesses in the towers and numerous others in the immediate vicinity had OpenVMS disaster-tolerant clusters with backup sites outside the area. Every one of them had their operations running just moments after the catastrophe, says Freund.

Following that awful day, OpenVMS seems to have gained new prominence. In some IT circles, it's now regarded as the *crème de la crème* in disaster recovery and high availability, according to users and analysts.

"OpenVMS uptimes can be measured in years," says Stenz. "This is certainly preferable to a culture of rebooting and disruption that plagues other platforms due to viruses, Trojans, denial-of-service attacks and endless patching of systems."

OpenVMS Globalization

It isn't just U.S. companies that are remaining on or rediscovering OpenVMS. The operating system has maintained a strong hold overseas, accord-

If you're about to buy new Alpha hardware, buy with room for growth so that you don't back yourself into a corner later on if your porting plans don't work out as intended. Such systems work well and are a known technology. "Alpha purchases are estimated to still be in the double-digit thousands of units sold each year," says consultant Terry Shannon.

Move from Alpha to Itanium-based systems if you gain advantages, such as performance (that's probably a few years away) and consolidation. Also be aware of support costs for Alpha, which will probably rise above those for Itanium boxes. Howev-

er, don't rush to be the first to use the new systems unless you have some pretty good reasons to do so. "Most applications will migrate to Itanium with a minimum of effort, mainly recompilation," says Bob Gezelter, a software consultant in New York. "Programs which contain special Alpha- or VAX-specific code typically require modest changes."

If everything you need is supported on Itanium, then consider using it from Day 1, but be aware that you'll be among the first to use it in a production environment. "It's all about assessing risk and striking an appropriate balance between risk and costs," says Butcher.

Performance

OpenVMS can handle 3,000 simultaneous active users and almost 2 million database transactions per minute on Oracle.

Uptime

It's quite normal for VMS cluster uptimes to be measured in years. User after user has verified this.

Clustering

OpenVMS offers shared-everything clustering, i.e., applications running on 96 servers can simultaneously write to the same files on shared disks. If one server goes down, there's no data loss, and the application stays up. Similarly, two physi-

cally separate data centers can be part of a single VMS cluster. This feature kept several Wall Street firms in business on Sept. 11, 2001.

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Disk Mirroring

Known as volume shadowing on VMS, this feature mimics disk drives for applications using a set of virtual devices. Synchronously mirrored write operations are transparent to users.

Maximum Nodes

OpenVMS can run a maximum of 96 nodes in one cluster, far more than any Unix or Windows-based systems. That equates to over 3,000 processors.

Intersite Distance Limit

The maximum distance allowed between disaster recovery sites is 800 kilometers on OpenVMS, compared with 100 kilometers at best on other systems.

Security

Open VMS is "virtually unhackable," says Ken Farmer of OpenVMS.org. Indeed, at the DefCon 9 Hacker Conference a couple of years ago, OpenVMS beat out Windows NT and XP, Solaris, Linux, BSD and others and was graded as unhackable by the best hackers in the business, according to Farmer.

—Drew Robb

gle unit," says Sanchez Reina. "This is made possible by the fast, powerful and clusterwide lock manager."

In 1998, BCD ported VMS from VAX to Alpha. It now runs a three-machine Alpha/VMS cluster in conjunction with a customs system and optical archive running on Windows 2000 Server, an HP StorageWorks EVA 5000 storage array and an Oracle Corp. database.

Future Plans

How much longer will OpenVMS remain viable?

"Our intention is to keep on using VMS until doomsday, as long as it keeps innovating and providing the highest standards in the IT world," says Sanchez Reina. "We have no plans to migrate to VMS on Itanium, at least for now."

That seems to be the consensus among IT shops: Stay on Alpha, milk it for all it's worth, and keep a close eye on developments in the VMS/Integrity server space.

Like BCD and many other users, Einstein Healthcare has no immediate plans to migrate. Stenz says he has a four-year lease on Alpha hardware and is unlikely to change during that period.

"We are going to adopt a wait-and-see approach to developments on Itanium and VMS," he says.

Meanwhile, HP has had OpenVMS Version 8.1 in field testing on Itanium for many months. At the recent HP World Conference, it released Version 8.2 for testing. The company expects the first shipments of OpenVMS/Integrity servers either late this year or early next year.

Few anticipate significant problems in the system or in porting applications from Alpha to Itanium.

"The OpenVMS APIs are so correct architecturally that the operating system has not required substantial change since its original design in 1977," says Bob Gezelter, a software consultant in New York who has tested the new system. "OpenVMS on Integrity is a case of seamlessly assimilating a new processor, not using a high-tech shoehorn to force an old architecture into an ill-fitting shoe."

XDelta's Butcher has also tested Itanium/VMS. Other than needing some time to figure out the console interface, he says he found that VMS seemed to run and behave just as it always does.


Butcher does, however, express some reservations. "Performance might be an issue at the moment," he says. "The big Alphas probably outperform the larger Itanium boxes, but that will change with time."

Few Alpha users are in a hurry to make the switch.

"After seeing where the market and technology direction is heading, we may adjust our direction after the third year of our lease," says Einstein Healthcare's Stenz. "Depending on how things play out on Itanium 64 and VMS, we could very well then migrate to that architecture or extend/augment our ES47." **50085**

MORE ONLINE

For a list of vendors with products that support OpenVMS, visit our Web site:

 **QuickLink 50091**
www.computerworld.com

Error Checking And Correction

DEFINITION

Error checking and correction (ECC) is the process of detecting errors during the transmission or storage of digital data and correcting them automatically. This usually involves sending or storing extra bits of data according to specified algorithms.

BY RUSSELL KAY

WHenever we send data — whether it's audio signals over a phone line, a data stream or a legal document — to someone else, we need to know that what arrives on the other end is identical to what we sent. Similarly, whenever we store data on disk or tape, we need assurance when we retrieve it that it hasn't been altered. Accurate data is absolutely essential for computations, record keeping, transaction processing and online commerce.

Unfortunately, storing and transmitting data both involve the actions of physical entities in the real world: electrons, photons, atoms, molecules, wires, contacts and more. This means there's always some degree of uncertainty because background noise is ever present in our physical universe and might alter or corrupt any given data bit.

Error Detection

Early in the computer revolution, some powerful techniques were developed first to detect and later to correct er-

rors in data. The most obvious, and perhaps least efficient, way to find data changes is to repeat each unit of data multiple times and then compare the copies. This method is so inefficient that it's not used for error detection — though the same idea is used in RAID-1 (disk mirroring) for fault tolerance.

The best-known error-detection method is called parity, where a single extra bit is added to each byte of data and assigned a value of 1 or 0, typically

according to whether there is an even or odd number of "1" bits. The receiving system calculates what the parity bit should be and, if the result doesn't match, then we know that at least one bit has been changed, but we don't know which bit is wrong. It's also possible that the data is entirely correct and the parity bit is garbled. If two bits have been altered, however, the changes cancel out: the data will be wrong but the parity bit won't signal an error.

Two other established error-detection techniques are checksum (add up all the bits of the entire message, docu-

ment or program and produce a single sum) and cyclic redundancy check, which operates on groups of bits at a time and uses division, not addition. Checksums and CRCs are calculated before and after transmission or duplication and then compared. However, checksums and CRCs alone can't verify data integrity, since the algorithms are known and it's possible to introduce intentional changes that these methods won't detect. A more secure way would involve cryptographic hash functions, one-way mathematical operations whose use of secret encryption keys precludes making undetectable alterations.

Error Correction

Thus techniques exist that will let us find errors in our data, but then what? One way to get the right stuff is just to ask the sending party or device to resend it. If there are a lot of errors or there is a long communications path, however, such as when we're sending data halfway around this noisy planet, retransmission can dramatically slow down communications.

What's needed is a system that will find any errors and correct them automatically. It turns out that we can create such algorithms (known as error-correcting codes, which is the other phrase that ECC sometimes stands for) at any degree of precision we want, but with a trade-off in efficiency. Most of the time, we settle for codes that can detect and correct errors in one bit and detect but not correct errors in two or more bits. (A simple illustration of how this works with a one-bit error is shown in the box above.)

HOW ECC WORKS

ECC ADDS multiple parity bits, though calculations are usually applied to complete words (typically 32 or 64 bits), not single bytes. Each ECC bit represents the parity of a different subset of the data bits, and each data bit is normally included in more than one ECC bit. This lets us detect a 1-bit error, identify the offending bit and fix it. It also lets us detect but not correct 2-bit error. (For an example of how ECC detects and corrects a 2-bit error, go to QuickLink 50352 on our Web site.)

To see how ECC works in a very simplified form, let's look at a 7-bit chunk of binary data. To this we add three more bits for ECC data, each calculated as the parity bit for a subset of the seven bits. **Figure 1** shows the three subsets, with sample data and the calculated ECC bits:

FIGURE 1	DATA BITS							ECC BITS		
RECEIVED DATA	0	1	1	0	0	1	0			
Subset 1 bit										
Subset 2 bits										
Subset 3 bits										
Subset 1 value	0	1		0	0			1		
Subset 2 value		1	1	0		1			1	
Subset 3 value	0		1	0			0			1
FINAL VALUE	0	1	1	0	0	1	0	1	1	1

To simulate an error, let's alter the third bit from 1 to 0. Now the received data looks like **Figure 2**, with differences in red:

FIGURE 2	DATA BITS							ECC BITS		
RECEIVED DATA	0	1	0	0	0	1	0			
Subset 1 bit										
Subset 2 bits										
Subset 3 bits										
Subset 1 value	0	1		0	0			1		
Subset 2 value		1	0	0		1			1	
Subset 3 value	0		0	0			0			1
FINAL VALUE	0	1	0	0	0	1	0	0	1	1

We can see that the first calculated ECC bit doesn't match, so we know there's an error. Because ECC1 is the mismatch, this tells us that the error can't be in Bits 1, 2, 4 or 5 (yes, that seems counterintuitive, but parity can be like that). This leaves only Bits 3, 6 and 7. How do we tell which? The three subsets of the data bits used to create the ECC bits in this example were chosen so that changing any single data bit produces a different ECC value than changing any other data bit.

If we assume the error is in Bit 7, we can change it and recalculate the ECC values as 110. Since that doesn't match the received 100, we try Bit 6, which gives us 101, also not a match. This leaves Bit 3; changing its value gives us the correct ECC bits and confirms the correct data.

Today, ECC is used in many different devices, from CD players to computers. Perhaps its best-known use is in special ECC RAM for servers, in which extra bits are designed directly into the dynamic RAM chips.

Looking to the future, ECC could gain increased visibility and adoption in the wireless communications market. That's because the popularity of wireless communications and the availability of wireless products are both predicted to grow considerably, but the

bandwidth and throughput of wireless channels will remain considerably lower than those of hard-wired connections.

50127

Kay is a Computerworld contributing writer in Worcester, Mass. You can contact him at russkay@charter.net.

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Lack of Control Becomes Nightmare

Our security manager discovers that finding out what's really going on in the network is a daunting task. By C.J. Kelly

I HAD A BAD DREAM the other night. In it, I was sleeping in the back seat of a convertible. I woke up because the air had gotten chilly and the car was swaying. I rubbed my eyes and tried to shake the cobwebs out of my mind as I peered into the front seat. No one was driving. I scrambled over the front seat and took the wheel, only to discover that I had no control over the car. It's not that the car was careening out of control; it had a mind of its own. It was steadily taking me up a steep, winding mountain road with cliffs on either side. The road got narrower and narrower before the car finally came to a stop. I looked around and suddenly became very afraid. Then I refused to continue the nightmare and woke up.

We could spend some time interpreting it, but I think it's pretty clear that this dream represents how I feel about managing information security. I'm driving, but I don't have control; we haven't gone off a cliff, and I'm not going to be happy if we do. I have a company's information assets to protect, and I don't want to have to notify our customers that their personal information has been exposed or deliver the news that our network just got "owned." To keep the bad dreams at bay, I'm going to have to make some changes.

For starters, I had it out with my boss the other day and told her that I wanted complete control over all network security operations, including fire-

wall, virtual private network (VPN), router and domain access administration. Those things are currently managed by IT operations, not security operations. I need additional head count. I need tools. And I want an organizational change. I don't care about policy. I don't care about process and procedure (Sarbanes-Oxley be damned). I care about doing

what it takes to secure my company's information assets.

What brought me to this point? In my last column, I was fighting the virus war. It's going well.

We hired a contractor that does nothing but track down infected systems, scan them for viruses and spyware, and apply operating system patches. You may ask, "Why in the world isn't that automated?" It's a long story, but remember, I inherited this network. I didn't build it.

The enterprise antivirus system is scheduled for an upgrade within the next week or two, and that should allow for tighter controls and less manual effort. The suspicious traffic identified by the outside consultants that I had attributed to viruses and Trojan

horses seems to have stopped.

IT has a number of projects under way for upgrading the infrastructure at the server and desktop levels. My team has been actively involved in these projects and has provided the security requirements. Until these projects are completed, my job is much tougher. Which brings me to my current frustration.

Clueless

We have no idea what is really going on in the network. (Please, all you security folks out there who have the tools and bodies, no need to respond.) We discovered that our network intrusion-detection system (NIDS) is seeing only 50% of our network traffic. The problem is that we've been relying on port spanning to do the job. The theory behind port spanning is that a copy of every packet that traverses the switch is sent to a monitoring port.

We use a switch port analyzer (span) and remote span to copy the traffic from our various switches to the port where our probe resides. The NIDS passively monitors the traffic and generates alerts based on a rule set of undesirable activity. Trouble arose because of session limits, switches that don't have the capability of carrying the rspan traffic and other technicalities. We also found ourselves in a tug of war with IT over the span ports themselves. When you get an alert from the NIDS that says zero events, you know something's wrong. Did IT just snag our span port? We began to research other methods of "seeing" all the traffic.

What we needed was a way to tap into the network traffic, something that would aggregate full-duplex traffic into a single data stream that our

NIDS, based on the freely available Snort program, could take advantage of.

We found some good basic information online at Talisker Security Wizardry (<http://securitywizardry.com/taps.htm>) and selected a product to test in our environment. Net Optics Inc. in Sunnyvale, Calif., has a port aggregator tap that appears to allow full-duplex monitoring with a single network interface card and has a buffering method for handling traffic overload.

Next, we had to decide where to deploy the taps. Certainly, we would initially deploy one at the firewall, one in the demilitarized zone, one to monitor VPN traffic, one to monitor WAN traffic and several on critical LAN segments.

Ah, but how much is this going to cost? Each tap costs about \$950. That seems high, but I'd rather pay more for a high-powered, fully functional device than Mickey Mouse with less expensive devices that don't give us what we need. And to think we were going to spend quite a chunk of change on event correlation software because we thought we were seeing all the traffic.

The good news is that we discovered a serious issue and found a way to address it. The timing was perfect because I was able to adjust the budget forecast to include the solution. The bad news is that I still need to find a way to convince my manager that network security is a serious issue. To be effective at protecting the company's information assets, we need complete control over IT security operations. This would require an organizational change at the highest levels of the company. The political implications of such a change are as daunting as the tasks at hand. ▀

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "C.J. Kelly," whose name and employer have been disguised for obvious reasons. Contact her at mscjelly@yahoo.com, or join the discussion in our forum: **QuickLink a1590**

To find a complete archive of our Security Manager's Journals, go online to computerworld.com/secjournal

SECURITY LOG

Security Bookshelf

■ **High-Tech Crimes Revealed: Cyberwar Stories From the Digital Front**, by Steven Branigan; Addison-Wesley, 2004.

The author, an internationally recognized computer security expert, has been involved in both private- and public-sector security investigations. Particularly interesting is his description of how law enforcement has progressed in the area of investigating computer and high-tech crimes. While Branigan details a variety of investigations, the chapter on how – and how *not* – to run a high-tech investigation was the most enlightening. Even though it's about 400 pages long, this is an enjoyable read.

– C.J. Kelly



IBM Offers Monthly Security Reports

IBM has introduced a security service that offers a concise monthly report of global network threats. Designed to help organizations assess their security needs from a business perspective, IBM Security Intelligence Services reports can be customized by industry. Subscriptions start at \$10,000 to \$15,000 a year. Each report is about a page and a half long, with a threat-level score and advice about how to address critical issues.

New Symantec Security Appliance

Symantec Corp. announced a line of security appliances for branch offices. The Symantec Gateway Security Appliance 400 Series devices feature a firewall, intrusion prevention and detection, antivirus policy management, content filtering and virtual private networking. They can function as secure wireless LAN access points and be centrally managed. Pricing starts at \$420 per appliance.

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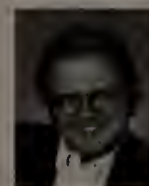
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BRIEFS

Ascential to Develop New User Interface

■ Data integration application vendor Ascential Software Corp. in Westboro, Mass., last week announced a new self-adapting interface for its Enterprise Integration Suite. The interface will be able to anticipate users' tasks and offer execution guidance, according to the company. It will be in beta in the first quarter of 2005.

Sendmail Offers Content Manager

■ Mailstream Content Manager from e-mail security vendor Sendmail Inc. is available now. The product features e-mail content policy management and anti-spam and virus protection. It also has a management console that allows business-specific policies to be easily changed or added, according to the Emeryville, Calif., company. The application starts at \$16,000 for 500 users, with a one-year antivirus and antispam update subscription.

Microsoft Releases Migration Tool Kit

■ Microsoft Corp. released a free, downloadable migration tool kit for the Virtual Server Migration 2005 software it recently released. The Virtual Server 2005 Migration Toolkit enables users with server hardware running Windows NT 4.0, Server 2000 or Server 2003 to migrate to a virtual machine environment running on Virtual Server 2005. The tool kit is also intended to help users migrate VMware Inc.'s virtual machine software to Microsoft's Virtual Server 2005.

Inovis Certifies Interoperability

■ Inovis Inc. announced that its BizManager 3.0 trading partner connectivity software has been certified for Applicability Statement 2 interoperability. BizManager 3.0 will be generally available in December, the Alpharetta, Ga.-based company said.

BRUCE SCHNEIER

Make Vendors Pay For Security Flaws

INFORMATION INSECURITY is costing us billions. We pay for it in theft — information and financial theft. We pay for it in productivity loss, both when networks stop working and in the dozens of minor security inconveniences we all have to endure. We pay for it when we have to buy security products and services to reduce those other two losses. We pay for security, year after year.

Unfortunately, all the money we're spending isn't fixing the problem. We're paying, but we still end up with insecurities. The problem is insecure software.

It's bad design, poorly implemented features, inadequate testing, and security vulnerabilities from software bugs. The money we spend on security goes toward dealing with the effects of insecure software.

And that's the problem. We're not paying to improve the security of the underlying software. We're paying to deal with the vulnerabilities rather than eliminating them.

The only way to improve the situation is for the vendors to fix their software, and they won't do that until it's in their financial best interest to do so.

Today, the costs of insecure software aren't borne by the vendors that produce it. In economics, this is known as an externality: the cost of a decision that's borne by people other than those who are making the decision.

There are no real consequences to the vendors for having bad security or for having low-quality software. Even worse, the marketplace often rewards low quality. More precisely, it rewards additional features and timely release

dates, even if they come at the expense of quality.

If we expect software vendors to reduce the number of features in their products, lengthen development cycles and invest in secure software development processes, it needs to be in their financial best interest to do so. If we expect corporations to spend significant resources on their own network security — especially the security of their customers — it needs to be in their financial best interest to do so.

Liability law is one way to make improving security in the best interests of those organizations.

The risk of liability raises the costs of doing it wrong and therefore increases the amount of money a CEO is willing to spend to do it right. Security is risk management; liability fiddles with the risk equation.

Basically, we have to tweak the risk equation so a vendor's CEO cares about actually fixing the problem. And putting pressure on his balance sheet is the best way to do that.

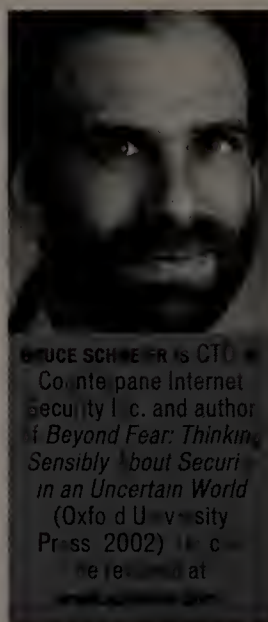
Clearly, this isn't all or nothing. There are many parties involved in a typical malicious attack. There's the company that sold the software with the vulnerability in the first place. There's the person who wrote the attack tool. There's the attacker himself, who used the tool to break into a network. There's the owner of the network, who was entrusted with defending that network.

One hundred percent of the liability shouldn't fall on the shoulders of the vendor, just as one 100% shouldn't fall on the attacker or the network owner. But today, 100% of the cost falls directly on the network owner, and that simply has to stop.

We will always pay for security. If software vendors have liability costs, they'll pass those on to us. It might not even end up being cheaper than what we're paying today. But as long as we're going to pay, we might as well pay to fix the problem. Forcing the software vendor to pay to fix the problem means that it might actually get fixed.

Currently, there is no reason for a software company not to offer feature after feature after feature. Liability forces software companies to think twice before changing something. It forces them to protect the data they're entrusted with. Liability means that those in the best position to fix a problem are actually responsible for that problem.

Information security isn't a technological problem, it's an economics problem. And the way to improve information technology is to fix the economics problem. Do that, and everything else will follow. **50161**

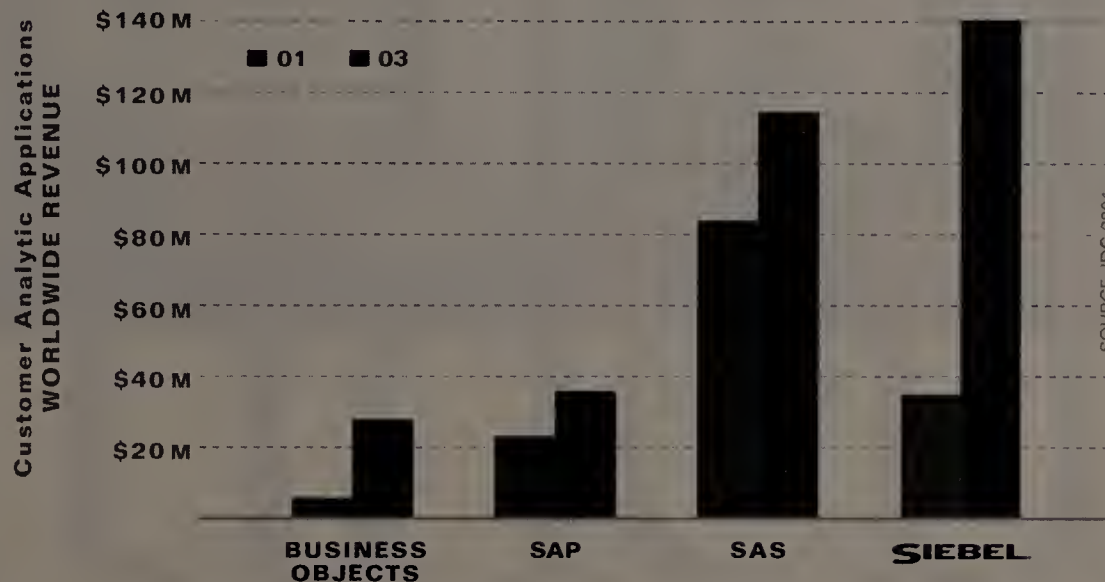


BRUCE SCHNEIER is CTO of Counterpane Internet Security Inc. and author of *Beyond Fear: Thinking Sensibly about Security in an Uncertain World* (Oxford University Press 2002). He is also a frequent speaker at security conferences.

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Then there's this: Oracle will drop the current level of support for Oracle Database 8i at the end of 2004. Meaning limited support, higher cost or a complete migration to current versions. Fortunately, IBM offers ongoing, around-the-clock service and support for DB2.

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Watch Your Weblog

Dangers lurk in corporate weblogs, and sponsoring or creating one is rife with legal liabilities. Here are some precautions you should take. **Page 40**

Think Tank

A deeper dive into Alinean's ROI calculations; an unorthodox examination of the skills the "gamer generation" will bring to the workplace; and a new look at IT buyer intentions. **Page 42**



OPINION

What's the Problem?

Too many people look for a solution when they haven't yet identified the problem, says Paul Glen. In their role as problem solvers, IT leaders need to help their clients eliminate this fuzzy thinking. **Page 44**

T OUTSOURCING Tuneup

CHANGING NEEDS CAN MAKE LAST YEAR'S OUTSOURCING STRATEGY OBSOLETE. ASK THESE 10 QUESTIONS TO KEEP IT ON THE MARK. BY MARY BRANDEL



DAVE WHEELER

MANY COMPANIES that sign on for outsourcing services file away the contract and pull it out only when the three-, five- or 10-year term comes to an end. But it's important to regularly review not only whether the original contract is still meeting your needs but also whether last year's outsourcing plan is still relevant to this year's business strategy.

"Outsourcing has become an integral part of our IT governance strategy," says Pavan Nigam, CEO of Cendura Corp., a Mountain View, Calif.-based application management firm. "Once you accept that, you realize it

THE MECHANIC

Tuning up your outsourcing strategy requires a skilled mechanic with "more than the ability to squeeze vendors," say Robert McNeill, Marc Cecere and Adam Brown in "Building the Vendor Management Function," a March 2004 report from Forrester Research Inc.

The person who develops and reviews the outsourcing strategy should report to the CIO, they say. He needs to understand the strategic direction of the organization, how the business is run, how to negotiate with experts and how to form alliances. Here are some other skills they see as key to this position:

- Strong oral and written communication skills
- Contract negotiation skills for complex agreements
- The ability to work with executive management
- Knowledge or background in metrics and measurement, with particular emphasis on service-level agreements
- Experience with various outsourcing and services offerings, and pricing and delivery structures
- Understanding of and experience with financial reporting
- Knowledge of and experience with enterprise license agreements

Purchasing personnel aren't good candidates for this role because they lack a strong background in IT, the authors say. Good candidates include IT managers and business unit executives with IT backgrounds.

— Kathleen Melymuka

needs to be reviewed not on an annual but on a quarterly basis."

"Too often, [an outsourcing contract] becomes shelfware," says Lorrie Scardino, research director at Stamford, Conn.-based Gartner Inc. "I tell clients they should get into the habit of reviewing [their outsourcing strategy] every six months."

Mergers, acquisitions, divestitures, changes in the trading community or governmental regulations — all of these circumstances should trigger an outsourcing strategy review. With that in mind, here are 10 questions you should ask when updating your company's IT outsourcing strategy.

1 Is the business trying to expand overseas or enhance its global image? If your company has no previous experience overseas, this is a particularly good time to consider partnering with an offshore technology provider. "If you are looking to do business in, say, Asia, you might very well want to outsource to a provider that could help you do business in that part of the world," says Wendell Jones, a senior consultant at Cutter Consortium in Arlington, Mass.

A global company should also consider using a combination of its own staff and offshore resources when trying to polish its global image. But be wary of exceeding a 70-30 ratio of offshore to internal staff for software development projects, he says. Letting more than 75% of the development work go offshore can lead to serious difficulties, since off-site programmers may not be as skilled as on-site staff. Also, off-site workers might not be as sensitive to issues such as integration with existing systems or changing user requirements.

Cost cutting alone is not enough reason to look offshore, warns Nigam, who says Cendura plans to expand into Asia and Europe in the next 12 months. "I've seen so many companies get excited about hiring someone for \$25 an hour, but chances are high that they'll need four bodies to complete the work of one of their own workers," he explains. "If you make the investment right, you might get the ratio down to 1.5-to-1, but you'll never get a 1-to-1 ratio."

2 Are new business initiatives likely to overload your IT staff? When new projects threaten to overwhelm the IT staff at J.B. Hunt Transport Inc., a transportation logistics company in Lowell, Ark., CIO Kay

Palmer looks for rote work that she can contract to an outsourcing supplier. Typical examples include converting files, expanding fields and translating reports into different languages.

The alternative — outsourcing new projects — doesn't work as well, Palmer says. The last time J.B. Hunt tried to do that, the business side was still working on requirements definitions midway through the project, resulting in scope creep that the outsourcer couldn't manage or control. The development work was brought back in-house within a year. "I've learned that unless requirements are very well defined and there's not a lot of tie-in with existing systems, outsourcing is hard to do," Palmer says.

Also look at the maturity of the project when considering outsourcing, says Nigam, who co-founded Health-eon (now WebMD Inc.). "If you're in the early stages of product development, it requires close collaboration with customers as well as domain expertise," he points out. While Nigam was at Healtheon, two-thirds of outsourced work was Release 3.0 or beyond, he says.

3 Is the company preparing to undertake a critical business objective with a tight deadline? It can make sense to outsource a new project when the work is extremely time-sensitive or critical to gaining new business. At St. Luke's Medical Center in Kansas City, Mo., CIO John Wade decided to outsource the IT component of opening a "digital hospital" by the end of next year.

"It's an enormous workload," Wade says. The project includes implementing three new software products, determining the benefits of those systems and then retrofitting them into five other St. Luke's locations, which would also entail standardizing those hospitals' procedures, he says. "There was no way to do it unless we hired 15 people and trained them, and even then, our risk of not being able to make the date was significant," he adds.

A similar situation occurred at Cendura, when a prospective client requested customized features in a software product. "We figured we couldn't win the deal using our highly leveraged resources in the U.S., but taking it offshore gave us extra flexibility," Nigam says. "If we had to apply very expensive resources, it would have made the deal less feasible for us."

4 Is the company planning to engage in new lines of business? Companies that have existing outsourcing relationships need to review these contracts when starting a line of business, says Brad Smith, vice president of research at Kennedy Information Inc., an information source on professional services in Peterborough, N.H. For example, if a retail bank that outsources call center activities was expanding into brokerage, insurance or other financial services, that would require a whole different set of call center training and activities.

Similarly, if a U.S.-based company was to expand into a new region, such as Asia, calls could begin coming in 24 hours a day as opposed to 12. "Those changes need to be anticipated," Smith says.

5 Are there areas of IT that don't interact with other departments or customers? J.B. Hunt's Palmer says in-house staffers add great value when they regularly interact with customers. For instance, a database administrator who knows the extent to which the business is affected when a table isn't available may create a workaround to make the data available more quickly. Or the help desk staff may regularly inform the quality assurance team about the problems it's addressing, thereby helping to improve system design.

"In that way, they're of much more value than just answering calls and taking care of problems," Palmer says. "If you have that level of integration, you can justify paying for people locally."

On the other hand, she says, if there are areas where you don't have that relationship, it doesn't make sense to pay a premium to keep it in-house.

6 How efficient are your IT operations? Earlier this year, Wade completed the process of determining whether to outsource part or all of his organization's IT function. He bases such decisions on four sets of metrics: the quality of St. Luke's IT operation, quantity of current IT projects, quantity of IT projects over a five-year time frame and price of delivering IT services to core constituents over five years.

Wade would choose to outsource if an outsourcing vendor could hit the same metrics as St. Luke's internal IT department and reduce operational

THREE HURDLES At a recent outsourcing conference, Peter Allen, managing director of global practices at sourcing consultancy Technology Partners International Inc., and Arnaud Bernaert, European group controller at Baxter International Inc., discussed the three hurdles that any outsourcing relationship must overcome:

- 1 POSITIVE ECONOMICS.** Assure discounted cash flow and return on investment.
- 2 STRATEGIC POSITIONING.** Protect operating margins and avoid dependence on third parties.
- 3 IMPLEMENTATION FEASIBILITY.** Ensure ample management attention and resource commitment as well as availability of suitable service providers.

costs by 17% over five years. He sets the bar high because in a long-term relationship such as outsourcing, a forecast 17% savings would likely turn into about 8.5% over a five-year period, he says. "That's not an easy job if, on top of that, [the vendor] also has to make a 20% to 30% profit," Wade says. Three years ago, the best offers were a 4.5% overall cost reduction and a 7% cost reduction in labor only. This year, Wade says, no one even responded to his request for proposals.

Still, Wade faithfully conducts this review every three years. "You have a responsibility as CIO to say you're providing the most cost-effective service you can," he says. "If I could outsource the network at a cost-effective level, I would do it because internally, it's a major strain on the IT group."

7 Have outsourcing trends changed? Palmer keeps her eyes and ears open to what her peers and competitors are doing on the outsourcing front. That includes listening for new trends in outsourcing options. "At times, the options that were available a few years ago may have been replaced by something that's more palatable," she says.

For instance, J.B. Hunt looked into call center outsourcing a few years ago but decided that its customers really needed to feel they were talking with a local company representative, local accent and all. This year, after attending a computer conference, Palmer heard about call center outsourcers in rural Arkansas [QuickLink 49795]. After reviewing cost vs. benefits, she deter-

mined that it wasn't worth it, but this type of networking may eventually lead to a workable alternative.

8 Have there been changes in the IT talent market? Even in these tough economic times, it's important to keep an eye on IT labor costs and supply. "Before I would look at outsourcing an entire function, I would expect to be faced with issues such as high cost of hire, escalating people costs that are out of control and high turnover," Palmer says. J.B. Hunt's turnover is only 4%, and salary costs are reasonable, so outsourcing isn't tempting now.

9 Is your current outsourcing vendor meeting its benchmarks and offering competitive pricing? It's not easy to determine if the deal you signed on for is still a good one a couple of years into it. Other outsourcers won't rush to provide you with a competitive bid, knowing that you're still tethered to a deal, says Bob Tevelson, a vice president at A.T. Kearney Inc., a management consulting firm in Chicago.


Start by checking whether the contract requires you to buy more service than you need or to spend more on it than you should. Though your contract

may not allow you to bring services back in-house, there should be enough flexibility to change service levels, skill sets or the location of workers. For instance, Tevelson says, "you can work with the provider to selectively shift applications offshore to support the objective of cost reduction."

10 Are your strategic objectives still being met through the arrangement? "You thought it was good deal when you got into it, but the deck chairs shifted on the ship, and now what do you do?" Tevelson asks. It's difficult to prematurely terminate an outsourcing contract, so experts recommend building in terms to the deal that accommodate changing business needs. For instance, what if you outsource your call center function and then divest a particular business unit, leading to a drop in call volumes? "In a productive relationship, the parties will try to renegotiate terms and conditions to make up for the lost volume," Scardino says. After all, it's important that the outsourcing relationship remain mutually beneficial.

☎ 50044

Brandel is a Computerworld contributing writer in Grand Rapids, Mich. Contact her at mary.brandel@comcast.net.



Your data runs a 6 minute mile.

MORE AND MORE PEOPLE are jumping on the corporate weblogging bandwagon. At Microsoft Corp., for example, there are currently more than 1,000 blogs. Like many companies, especially the IT vendor companies where weblogs tend to proliferate, Microsoft encourages the informal sites as a way for its employees to stay close to customers.

But as weblogs have multiplied, a number of legal issues have arisen, and regardless of whether your company sponsors its bloggers, it may be opening itself up to hidden liabilities. Here are some of the dangers of corporate blogging and precautions companies should consider.

DANGER Libel and trade libel.

Bloggers who write anything negative or defamatory about a corporation or an individual are opening themselves and their companies up to the possibility of libel suits, says David Carr, an attorney and partner at London-based consulting firm Big Blog Co.

PRECAUTION: Do your homework. If the blogger is going to make negative statements about a company's or individual's business activities, Carr says, "he's really got to do his research and make sure what he's saying can be proven to be true and not just believed to be true."

DANGER Disclosure of trade secrets or confidential information.

Employees who blog may intentionally or unintentionally share company secrets, says employment attorney Michael Karpeles, a principal at Chicago-based law firm Goldberg, Kohn, Bell, Black, Rosenbloom & Moritz Ltd. Information such as the finances or marketing and business strategies of the employer can cause damage to the company if it gets into the wrong hands. And a blogger who lets slip personal information about other employees may be open-

Blog: (noun) a contraction of **Web log**, an online journal of chronologically displayed information such as ideas, observations and opinions, presented in an informative but informal and accessible style. Maintaining a Web log is described as **blogging**, and the person contributing and administering such a Web site is called a **blogger**. Blogs are public and searchable on the Internet.

Watch YOUR Weblog

Legal liabilities lurk amid corporate blogs.

BY LINDA ROSENCRANCE



MARIA RENON

ing the organization to prosecution for privacy infringements.

PRECAUTION: Have employees sign a confidentiality agreement that states they will not disclose company confidential information, Karpeles says. "Even if they haven't signed an agreement, most states have a trade-secrets protection law that would prohibit individuals from misappropriating trade secrets," he says. But better to caution them upfront than prosecute them later.

DANGER Careless statements about the business that can be used during litigation.

Anyone, from the CEO to the receptionist, can have a blog, whether it's related to the company's Web site or not, so organizations don't know what information is out there that could hurt them, says Gregory Rutchik, founding partner of The Arts and Technology Group, a litigation and transactional law practice in San Francisco. "But the reality is, if you allow your employees to blog, the likelihood that things are going to come back to hurt you is huge," he says.

Attorney Diana McKenzie agrees. "If the company is encouraging blogging, the first thing I would worry about is discovery," she says, referring to the compulsory disclosure of pertinent facts or documents to the opposing party in a civil action.

"Blogging is one of the most fertile grounds in discovery for supporting any position, because you have a bunch of people never conscious of how this could be used against a company," says McKenzie, who chairs the information technology group at law firm Neal, Gerber & Eisenberg LLP in Chicago.

PRECAUTION: Companies that have their own blogs should consider how they fit into the business plan, and they should craft policies to let employees know what they can and can't write, says Rutchik.

Karpeles says an employer should create policies and guidelines about what can be included on an employer-sponsored weblog. Those guidelines should describe and define the scope of the blog. They should also point out issues that shouldn't be discussed and materials, including company documents, that shouldn't be posted to the blog without prior authorization. An employer can also have policies or confidentiality agreements for employees who blog on their own, says Karpeles.

Groove Networks Inc. in Beverly, Mass., has such a policy in place, says Jeff Seul, the company's general counsel. Though Groove doesn't sponsor a corporate weblog, employees could still

discuss company business on personal blogs, he says. So he has crafted guidelines for employees to follow if they do. Seul says that if a Groove employee chooses to talk about the company's technology on a personal blog, that employee is advised to post a notice in a prominent place making it clear to readers that his views don't necessarily represent those of the company.

Seul also reminds employees not to disclose confidential or proprietary company information or similar information disclosed to Groove by any third parties. He instructs them not to publish company documents without authorization, and he asks bloggers to be respectful of the company, its employees, partners, affiliates and competitors.

DANGER

Loose-cannon bloggers. Imag-

ine that your company changes strategy. There may be a bunch of blogs about the previous strategy, but all the employees will dutifully update them. But what if one of those blogs is from someone who is no longer an employee and doesn't want to take it down or amend it? "It may be awfully hard to cause that to happen," says McKenzie.

PRECAUTION: Employers should set up rules for what happens to the blog of a former employee and get all employees to accept them. ☎ 50037

Big Bloggers

Some companies sponsor corporate blogs. Others allow employees to blog informally. A small but growing number of U.S. organizations have blogs written by their top executives. Here are a few corner-office bloggers:

- **Mark Cuban, CEO, Dallas Mavericks**
- **Ray Ozzie, CEO, Groove Networks**
- **Alan Meckler, CEO, Jupitermedia Corp.**
- **Michael Powell, chairman, Federal Communications Commission**
- **Jonathan Schwartz, chief operating officer, Sun Microsystems Inc.**

Blog Rules

Staying out of legal trouble is paramount, but it won't ensure a good corporate blog. These recommendations from Robert Scoble at Microsoft, Nick Wreden at the American Marketing Association, Rich Ottum at eStrategyOne and other bloggers will help you write a corporate blog worth reading:

- | | |
|------------------------|------------------------------|
| ■ Be original | ■ Post good news fast |
| ■ Be authentic | ■ Post bad news faster |
| ■ Have a human voice | ■ Stay relevant |
| ■ Avoid jargon | ■ Use a spell checker |
| ■ Tell the truth | ■ Update frequently |
| ■ Don't guess | ■ Once you start, don't stop |
| ■ Acknowledge mistakes | ■ Never change your URL |

Contrarian View


Not all companies take this advice to heart. Microsoft encourages employees to stay connected to customers through weblogs, but it doesn't have a corporate policy on blogging. "We see blogging as a great opportunity for direct and deep two-way conversations with

the online community," says Microsoft spokesman Adam Sohn. "We get important, real-time feedback on our products, and customers get greater insight to what is going on with key technologies inside the company, which helps them plan their business and continue to be successful."

Today, there are more than 1,000 bloggers at Microsoft, and that num-

ber keeps growing, Sohn says. But there appears to be little effort to categorize, control or even counsel them. "These [bloggers] are, by and large, the domain experts in their areas," he says, "and as a company full of people passionate about technology, the overall belief is that people will do the right thing."

— Linda Rosencrance



Your data
is 7 pounds,
3 ounces.

ThinkTank

BRAIN FOOD FOR IT EXECUTIVES

Drilling Down Into ROI Numbers

WHEN IT CONSULTANCY Alinean LLC came out with corporate rankings based on its new IT benchmarking metric, the top companies were Fannie Mae and Pioneer Natural Resources Co. But Wal-Mart Stores Inc., often considered a huge IT success story, was nowhere near the top.

Why? Alinean's new metric, dubbed ROIT (Return on IT), is intended to show IT's relationship to shareholder value, as measured by Economic Value Added (EVA), a widely used measure of corporate financial performance [QuickLink 35920]. Wal-Mart's modest score can be explained by looking more deeply into the ROIT calculation, says Alinean President Bill Johnston. ROIT is calculated by dividing the company's EVA by its IT spending, which



yields an ROIT percentage. Fannie Mae's ROIT was a whopping 4,248%. Wal-Mart's was 42%.

It's not that Wal-Mart has lackluster IT investments, Johnston says. Wal-Mart scored lower because, as the biggest company in the world, its revenue growth has slowed and it isn't as profitable as it could be because it passes on its savings to consumers. But "IT is what got Wal-Mart to where it is today," Johnston says. "It's still an IT success story."

ROIT is just a snapshot, he adds. For example, Lowe's Companies Inc. currently has a higher ROIT (84%) than rival Home Depot Inc. (62%). But Johnston says Home Depot is making big IT investments to catch up after years of IT neglect, and he predicts that Home Depot will see dividends from those investments and a higher ROIT in the next few years.

— Mitch Betts

Best Bits

The most useful parts of recent business and IT management books

THE BOOK: *Got Game: How the Gamer Generation Is Reshaping Business Forever*, by John C. Beck and Mitchell Wade (Harvard Business School Press, 2004).



Conventional wisdom holds that gamers — those who grew up playing video games — have

overdeveloped thumbs, underdeveloped minds and zero social skills. This book takes a fresh look and finds that gamers (now 90 million strong) actually have skills that could be quite useful in business: bold but measured risk-taking, an amazing ability to multitask and unexpected leadership skills.

But managers from the boomer generation will need to adjust to the gamers' selfish drives and play-to-win mentality and tap their instinct for heroism, the authors say. Most surprising of all, the book says that despite all that time playing alone, gamers may turn out to be good team

players. They aren't any more isolated, introverted or unsociable than people who take piano lessons or play golf.

— Mitch Betts

Things to Ponder

■ **A report by the CFO Executive Board**, a research group in Washington, says chief financial officers have wrongly tried to expand their influence into realms such as IT and procurement when they should be sticking to their core responsibility of driving corporate financial performance.

■ **The No. 1 cause of a failed merger or acquisition** is ignoring potential integration challenges, says a study by Bain & Co. in New York. The No. 2 cause is overestimating synergies.

■ New York-based Korn/Ferry International surveyed 1,951 executives, and 47% of the respondents said their **companies still don't have procedures in place for dealing with an act of terrorism or a catastrophic event**. And 11% answered "don't know."

■ **Some disaster recovery plans encourage employees to travel** to alternate work sites or work from home for the sake of business continu-

ity. But the series of hurricanes in Florida shows that tactic may not work, says Forrester Research Inc. analyst Colin Rankine. "Residential power restoration may take days or weeks, while local flooding or other infrastructure failures such as roads and airlines may affect travel or equipment delivery to alternate sites," he says. **50150**

TOP FIVE ON IT

What's your biggest concern about enterprise instant messaging?

1. Security
2. Loss of employee productivity
3. Support for multiple IM formats
4. IM spam
5. Lack of satisfactory enterprise IM products/services

BASE: 96 IT decision-makers at U.S. businesses with more than 100 employees

SOURCE: SAGE RESEARCH INC., NATICK, MASS., AUGUST 2004

GOT ANY BRIGHT IDEAS? Send them to pitches@computerworld.com.

The IT Economy

■ **IS** will account for 2.5% of U.S. GDP in 2004, up from 2.3% in 2003, according to a new report from the U.S. Department of Commerce. The report, titled "The IT Economy: A Report on the IT Industry's Contribution to the U.S. Economy," is the first of its kind. It shows that the IT industry's contribution to the U.S. economy is growing, but at a slower rate than in previous years. The report also shows that the IT industry's contribution to the U.S. economy is growing, but at a slower rate than in previous years.

Buying Interplay

■ **Interplay** is a leading provider of IT management software. The company has recently announced a new partnership with a major IT vendor. This partnership will allow Interplay to offer its software to a wider range of customers. Interplay is a leading provider of IT management software. The company has recently announced a new partnership with a major IT vendor. This partnership will allow Interplay to offer its software to a wider range of customers.

Index of Business IT Demand, 2004



The graph shows a significant increase in IT demand from 1998 to 2002, followed by a sharp decline in 2003 and a slight recovery in 2004. This reflects the economic challenges faced by businesses during the early 2000s.

SOURCE: IDC's FutureScan, Framingham, Mass., October 2004

Career Watch

Hard Times Continue

Tough times are far from over, say 294 IT workers who responded to a recent survey by Amplitude Research Inc. in Birmingham, Mich. Some key findings:

- 24%** work for companies that have outsourced IT jobs.
- 45%** have not received a raise in over a year.
- 40%** say finding a new job would be somewhat difficult.
- 21%** say finding a new job would be very difficult or impossible.

Graduates Gain

The IT class of 2004 is in the money - at least compared with the class of 2003, according to a survey by the National Association of Colleges and Employers. This is the first year since 2001 that IT-related majors have seen an increase in starting pay. According to NACE, information sciences and systems grads are earning an average salary of \$42,375, up 10.7% from last year. Computer science graduates are making \$49,036, up 4.1%.

Job Tracker

This AFL-CIO database allows you to search by ZIP code, industry or company name to "find out which jobs in your community have been exported or lost due to trade." Try it: www.workingamerica.org/jobtracker/index.cfm

U.S. IT Staffing Is Up . . .

. . . but outsourcing is taking a toll, says Andrew Bartels, an analyst at Forrester Research Inc. Despite the furor over offshore outsourcing, the number of U.S. IT jobs actually grew in 2003 and will continue to grow from 2004 to 2008, he says. But offshore outsourcing is a real phenomenon, and it will hold down U.S. IT job growth and salaries at vendor and user companies, he adds.

Forrester projects that IT departments will grow 3% annually through 2008. That's an improvement from the job cutting of 2001 and 2002, but the offshore option means that companies will hire fewer IT workers than they would have in the past. Meanwhile, product development jobs at IT vendors, which led the revival in hiring in 2003 and 2004, will slump in 2006 and 2007 as vendors more aggressively take advantage of lower-cost offshore resources, Bartels says. **50067**

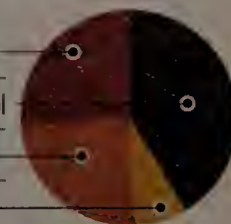
- Kathleen Melymuka

Companies Plan For Growth

Overall focus of the company . . .

12 months ago:

- 26%** Primarily growth
- 41%** Primarily cost control
- 25%** About evenly split
- 8%** Not sure



Today:

- 27%** Primarily growth
- 32%** Primarily cost control
- 34%** About evenly split
- 7%** Not sure



12 months from now:

- 42%** Primarily growth
- 18%** Primarily cost control
- 32%** About evenly split
- 8%** Not sure



Base: 244 executives in six countries
SOURCE: "ACCENTURE HIGH-PERFORMANCE WORKFORCE STUDY 2004"

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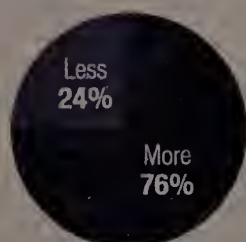
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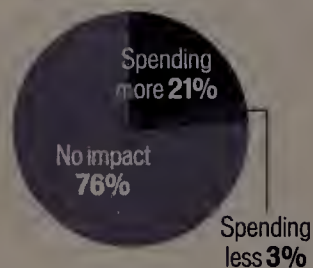
QUICK HITS

Management Attitudes

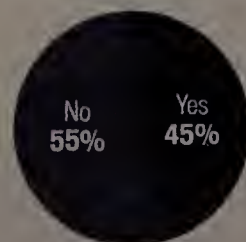
Is your top management more or less confident in the economy now than earlier this year?



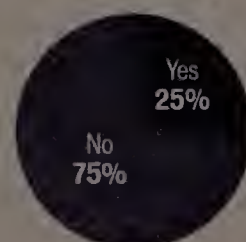
Is Sarbanes-Oxley having an impact on your software spending?



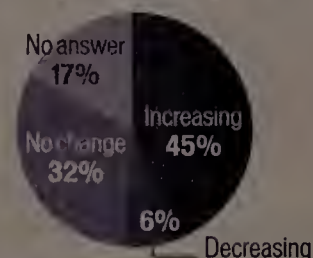
Do you use Linux?



Are you likely to standardize on Linux for a significant part of your computing?



Is your interest in Linux increasing or decreasing overall?



BASE: 75 U.S. and 25 European CIOs
SOURCE: TechStrat survey, Merrill Lynch & Co., New York, September 2004

PAUL GLEN

What's the Problem?

THOSE OF US IN IT tend to see the world through the lens of problems and solutions. Our entire work lives are devoted to solving problems. One after the other, we knock them down.

This habit tends to start early in life. In school, we are presented with math problems — and we solve them. At home, we are given toys to play with — and we disassemble and improve them. We are given broken computers — and we fix them. We are rewarded for our ingenuity.

These problems and solutions bring with them an emotional boost, too. What can beat the satisfaction of solving a truly challenging problem? Who doesn't love being the great hero saving Aunt Sadie's precious files from oblivion? At the end of a particularly thorny problem, don't you just imagine yourself spiking the code in celebration, as if you'd just caught a game-winning pass?

Problems have wonderful motivating features. They are compact and finite. They start with a challenge — a call to action (or at least to thought) — and elegant solutions signal triumph. We are conquering heroes. We stand on Olympus with the gods. We solve problems.

If you need evidence of how prominent problems are in our thinking, just look at the marketing materials for almost any software package or consulting company. They all bill themselves as your "solution" to something: "eBragidocious, your customer solution." "JIG Solution Providers." "iZap, your e-mail solution." Marketing people don't put that stuff in the brochures by accident. They know exactly where our emotional hot buttons are



and how to push them.

But for people so attuned to problems, we tend to be remarkably inarticulate about them. Very smart and accomplished people call me all the time, and the conversation goes something like this:

"Can you help me?" someone asks.

"I don't know. What's the problem?" I reply.

The answer is almost always something like, "Our management team needs a facilitated retreat." Or, "We need a training program on communications." Or, "We need a new project management process."

And then I have a problem.

Why? Because none of those things is a problem. Those are all proposed solutions to some unknown or unarticulated problem. And I have to come up with some polite but probing questions to try to understand what's going on.

Whenever you ask someone, "What's the problem?" and the response is phrased as the absence of some solution, you can be fairly certain that no one really knows what the problem is.

There are good reasons why this happens, none of which is that people are stupid or unobservant. The rea-

sons range from fear to hope.

FEAR: For most people, problems are uncomfortable things. They are dark, mysterious, threatening things. They have all sorts of unwelcome implications: "If I have a problem, there must be something wrong with me." When we sense a problem, the natural reaction is to want to do something about it, to make it go away.

But that often leads to making big leaps, skipping thought and going right to action. It's easy to hop from the symptom of the problem right to a solution without carefully considering the nature of the problem.

"John didn't find out about the late shipment until it was too late to do anything about it, therefore we need to send our managers to communication training." Or, "Sandy, that newly promoted manager, said some really hateful and unproductive things to her staff at that last meeting, so we'd better get her some coaching."

HOPE: At the other end of the spectrum are imagined realities, vague Utopian musings of a better future. These can be driven by truly extraordinary visionary ideas about transformations of organizations and strategies. Sadly, they are too often the result of a brilliantly conceived marketing program for some sort of minor technical gewgaw foisted on overwhelmed managers.

As experts in problem solving, our responsibility is to recognize and expose this sort of fuzzy thinking. As service providers, we help our customers best when we ensure that we are solving real problems rather than filling orders. As leaders, we must remember that work has the most meaning when all concerned know toward what end we strive. Absent solutions are never problems, and as an industry, we must stop acting as if they were. **50051**

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IT Careers: Does this Employer Value Diversity?

Companies covet a reputation for valuing diversity. They advertise, they talk, they count. But for those IT professionals defined as "diverse", how do you know for sure?

It's a question that Annette Merritt Cummings and Martha Ceja spend their careers evaluating. Cummings is vice president/national director of Diversity Services for Bernard Hodes Group. Ceja is a strategist with the group, based in Silicon Valley.

The Diversity Services organization looks at valuing diversity as a process of moving from an initial point through four phases that end with inclusion. Cummings defines inclusion as acceptance of the ideas and talents that all people bring to an organization, a long journey from initial training that helps an organization understand why diversity matters from a business stance.

Cummings says there are specific queues as to the progress along that continuum. "The first place you'd go in looking at a company is probably to its website. Do they have affinity groups? Is the site in more than one language, such as Chinese, Spanish or other? How many clicks does it take you to get to some mention of diversity? If it takes six or seven before there's any mention, that tells you this is not one of the company's higher priorities or that the human resources or diversity organizations has lost the battle for (website) real estate."

Ceja says appearances do count, on the website and in real life. "Are there individuals (of diverse backgrounds) in positions of leadership?" she asks. "Seeing this (for any person of diversity) is invigorating in terms of the possibilities it represents. I advise people to drill up further — look at the executive committee and at the board of directors. Look for transparency in terms of how open the organization is about its progress in valuing diversity. Is it something they report on annually?"

In addition, the two diversity leaders have advice for IT professionals looking at a career change. "If I were looking at new opportunities, I would look first at an industry that fascinates me, beyond the IT application, because that's where the jobs are — not in pure IT companies," says Cummings. The industries closest to the consumer, such as automotive and consumer products, are marketers by definition and understand the changes in the marketplace in this country. They have embraced diversity at a more aggressive rate."

Cummings also points to government agencies as major players in the future of the IT profession. Agencies ranging from the CIA to the Office of Personnel Management are hungry for IT skills; up to 70% of the senior managers in federal government are expected to retire in the next five years. "These aren't just entry level jobs — these are careers."

Ceja says for IT professionals there is a distinct advantage — skills mean everything. "In Silicon Valley, if you have the skills, this becomes a color-blind profession in some ways, "these are careers," she says.

The Four Stages of Diversity

1. Affirmative Action

Working with Federal, State and local laws and equal opportunity and affirmative action.

2. Valuing Diversity

Recognizing diversity and providing diversity training. Making Black History month, Women's History month, etc. Recognizing the fact that diversity can add value to your organization and help you achieve your goals.

3. Managing Diversity

Actively changing your culture. This is the hard part. Changing attitudes so that everyone is recognizing the value of diversity. Everyone understands the value. At this stage, you start holding people accountable. You may include diversity as a criterion in performance reviews.

4. Inclusive

Ensuring the organization has diverse teams in all areas. Making formal measurements. Managers are rewarded for their success in fostering diversity, with bonuses or provided with other incentives.

Source: Bernard Hodes Diversity Services

For more information about IT Careers advertising, please call: 800.762.2977

Produced by Carole R. Hedden

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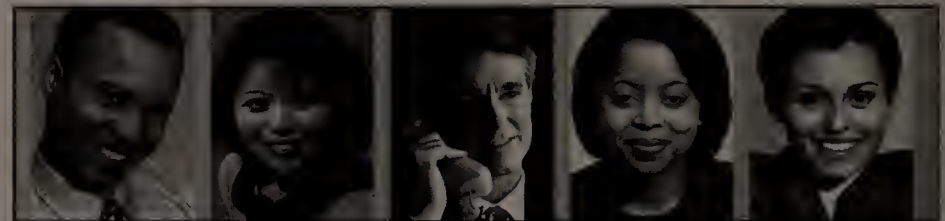
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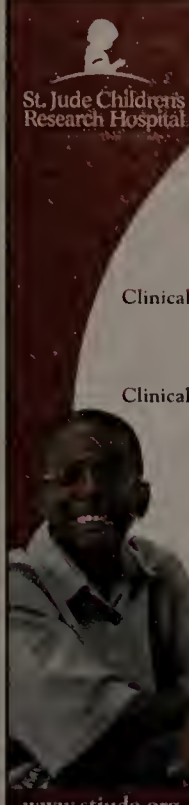
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SENIOR BUSINESS SYSTEMS ARCHITECT (MULTIPLE BUSINESS UNITS) - A Massachusetts-based company involved in the worldwide research, development, manufacture, marketing and sale of audio products and technologies, has an immediate need for a highly skilled Senior Business Systems Architect (Multiple Business Units). This senior-level position will be responsible for the planning, design, deployment, and post-implementation enhancement of mission-critical global hardware and business systems software solutions for enterprise-wide and web-based ("e-business") business units. This position is also responsible for mentoring technical personnel in the use of systems and database modeling techniques and the development of monitoring, recovery and incident response strategies and operational support procedures. Minimum education required is a Bachelor's degree in Computer Science, MIS, or a Business field relevant to business systems. Minimum experience required is eight (8) years pre- or post-degree experience (a relevant Master's degree may be substituted for 2 of the 8 years required experience) involving business systems software development, at least 3 years of which specifically involved the development of logical data models, and the planning and support of production operations under both SQL Server and Oracle. Specifically required is the demonstrated ability to lead the development and deployment of mission critical e-commerce systems architectures, and to model, design and implement component and service based transaction processing systems using UML-based techniques. Also required is the demonstrated ability to develop and maintain infrastructure capacity models, and to co-ordinate the deployment and management of mission-critical load-balanced, highly available, and redundant server configurations to support global operations. Additionally required is the demonstrated ability to translate logical data models into physical SQL Server and Oracle database schemas. Further required is the demonstrated ability to provide technical support to system and database administrators in tuning, optimization, backup, recovery and monitoring of mission-critical e-business systems. Finally required is the demonstrated ability to conduct new technology evaluations and provide project and resource cost estimations to senior financial management for capital budgeting and internal rate of return (IRR) analysis of recommended hardware and software solutions. Starting base salary is \$93,000 per year, together with ten (10) days paid vacation, contributory medical and life insurances, and other industry-competitive benefits. Qualified applicants respond with two (2) copies of resume only to: Case #200300358, Labor Exchange Office, 19 Staniford Street, 1st Floor, Boston, MA 02114. An EQE/MFHV.

Senior Enterprise Infrastructure Engineer wanted to participate in arch. designs for the planning, integration & development of J2EE applications. Must have Master's deg. in Comp. Sci. or Eng. & 2 yrs. software development & object oriented analysis & design exper., incl. commercial software eng. exper. in EJB, SOAP, Weblogic & WSAD, exper. in Content Mngmnt. or Digital Asset Mngmnt. Systems. & exper. in a tech. leadership role, responsible for design & development of core functional modules of J2EE based application. (A Bach. deg. & 5 yrs. exper. can substitute for a Master's & 2 yrs. exper.) Send resume to Human Resources, Job Code SE89, Context Media, Inc., 1 Providence Washington Plaza, Providence, RI 02903

Systems Analyst needed for Software Development, Services & BPO firm located in Burlington, VT. Job duties include. Assess performance and scalability of client company's Siebel Customer Relationship Management (CRM System) product for the purpose of improving performance. Build scripts using Load Runner to assess and applications performance for large enterprise software systems. Prepare documentation and make recommendation to the client regarding hardware and third party software usage. Work in both UNIX and Windows environments Applicant must have B.S. degree in computer science, engineering, math, or business. Applicant must also have 2 yrs. exp. in the job duties listed above or in any computer related occupation which must include the skills listed above. 40hrs/wk, 8:00am-5:00pm, Mon-Fri, \$60,000/yr. Send resumes to Job No. 29208 P.O. Box 488, Montpelier, VT 05601-0488.

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Computer Professionals (Multiple Openings) Software Engineer/Programmer Analyst/System Analyst/Database Administrator/ Network Administrator. Requirements include: US equivalent to a Bachelor or Master Degree; in lieu of a Master's Degree, we are willing to accept a Bachelor Degree with five (5) years of prior progressive professional experience. Must also have experience in some of the following skills: C/C++, Java, Cold Fusion, Microsoft Technologies (Visual Basic, .NET, ASP) CRM (Siebel, Clarify, Vantive), Middleware Technologies (ORBIX, TIBCO, CORBA, VITRIA), Dataware Housing Tools (Informatica, DataStage, AbInitio, Business Objects, Cognos, Micro Strategy, Brio) ERP (SAP, PeopleSoft, Oracle Apps, Baan) Mainframe (COBOL, CICS, JCL, VSAM), AS400, Ecommerce, Databases (SQL Server, Oracle DB2, Sybase), Windows (95/98/2000/NT/XP, Exchange), UNIX (Sun Solaris/HP), Linux and QA (Win runner, Load runner, SILK, Quick Pro, Rational Tools, Manual Testing). Extensive Travel and/or relocation. Attractive compensation package. Mail resume to: Human Resource Director, Reasonsoft, Inc., 74 State Road, Ste. 203, Kittery, ME 03904

Unix Administrator required to install, configure, update and maintain UNIX (primarily Sun Solaris) servers in a Windows environment, troubleshooting system problems and failures. Determine and implement the requirements for hardware and software and perform related duties. Bachelor in Computer Science and two year related experience required. Send resume to HR (IT01), Memphis Managed Care Corp., 1407 Union Ave., Suite 200, Memphis, TN 38104.

Sr. Software Engineer. Customize & integrate s/w components from 3rd party vendors into wireless products. Bach's deg in Comp Sci, Physics & Elec Engrg reqd + 5 yrs prog exp in specialty field. Snd resume to PMCDU, 1225 Northbrook Pkwy, Suwanee, GA 30024, Attn: D. Greer, RK

ProQuest, one of largest information aggregators, has multiple openings for Software Engineers, System/Programmer Analysts, DBA. Candidates must have MS/BS with experience. We offer attractive wage with full benefits. Please send resumes to: human_resources@il.proquest.com EOE.

System Analyst & IT staff wanted by Credit Acceptance Corp. Design & develop ETL process to upload data from OLTP system to Star Schema; develop interface process to transfer data between Loan Servicing & FACS; use Oracle, SQL Server, Crystal Reports. Please contact hr@creditacceptance.com.

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IndusRAD seeks engineers & IT staff to design & develop application software for Marine engines & advanced diesel engine using ANSI C program. Write test plan & procedures. Must have MS/BS with exp. Good wage with benefits. Please send resume to info@indusrad.com. EOE.

Ultimed HMO seeks system analyst to develop functional/system specifications using object oriented design & CASE tools, program in VB, VC++, Visual FoxPro, develop ad-hoc reports and queries. Applicants must have BS/MS with IT exp. Please contact lacthson@ultimed-hmo.com. EOE.

Web-Database Administrator/Programmer Analyst. Seeking qualified candidates possessing B.S. or equivalent with related work experience of 3 to 5 years. M-F 8am-5pm. Duties: Internet development, design, develop and implement, e-commerce application using COM, COM+, MTS, IIS, HTML, DHMTL, Java Script, Microsoft and Sun Technologies with database Oracle 8.1 & MS SQL Server 2000 and MS-Access 2000. Please send resume to Angel Diamond Jewelers Company, Attn: Mr.Yaqim Lalani, 4800 Texoma Pkwy, Ste 202, Sherman Tx 75090. Email: y_lalani@hotmail.com.

Seeking qualified applicants for the following positions in Memphis, TN: **Senior Programmer Analyst.** Formulate/define functional requirements and documentation based on accepted user criteria. Requirements: Bachelor's degree* or equivalent in computer science, MIS, engineering or related field plus 5 years of experience in systems/applications development. Experience with J2EE, Oracle databases and airline scheduling systems also required. *Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Matt Coplas, FedEx Corporate Services, 2955 Republican Drive, 2nd Floor, Memphis, TN 38118. EOE M/F/D/V.

Software Engineers, Programmer Analysts, Systems Analysts, need for VA based IT firm. Will need Bach +1 yr exp for Jr. Level positions and Masters +1 yr for Bach + 5 yrs of exp for Sr. Level position. Various skills req: Statistical software(SAS), PERL, ERWIN, C, C++, VC++, iplanet, ASP, DHTML, Javascript, Sybase, Oracle, SQLServer, Business Objects, Crystal Reports, Windows NT, IINUX, IIS, UNIX, Sun Solaris, CISCO, PL/SQL, Cognos, Brio, Netscape enterprises server, Cold fusion, data modelling, informatica, e-business intelligence, cics, db2, peoplesoft, jdewards, power builder, CRM, VB, j2ee, jsp, Jdbc, ejb, web sphere, weblog-ic, Apply with 2 copies of resume to H.R.Dept, Ling Technologies 2325, Dulles Corner Blvd, Suite 500 Herndon, Va - 20155.

Software Engineer, Applications. BS in c. sci, eng or rel. field; 3 yrs exp. to include Visual Basic, .NET, SQL, Crystal or T-SQL reporting, Rational Rose, Java, C++, UNIX; demonstrated communication, mentoring & documentation ability; exp. w/financial reports & concepts. Send resume to Joanie Bond, 9001 Hickman Rd., Ste 340, Urbandale, IA 50322. EOE.

Software Developer

Analyze, design and deploy customized IT applications for the mortgage and finance industry. Must have Bachelors Degree or Foreign Equiv. in CS or Eng. or in a related field & 2 yrs. exp. or 2yrs. exp. in a related position w/ability to use: C#, VB.Net, VB, ADO.Net and ASP.Net 4.0 hrs./wk 8:00 AM - 6:00 PM. Applicants send cover letter and resume to: Cyber Corp, Inc., 400 West Lake Street, Suite 216, Roselle IL 60172-3572, Attn: HR MGR.

EdgeTech Services, Inc. is seeking GIS Applications Developer. GIS & Remote Sensing experienced individuals w/ BS in Computer Science please respond with resume to: 141 Peaked Mountain Road, Townshend, VT 05353 Attn: Ms. Hunt.

Programmer Analysts for Naperville, IL. Design & Develop software applications using Oracle, Erwin, XML, UML, C++, Interwoven, Coolgen, ClearCase, ClearQuest, PVCS, UNIX; Bachelors or Equivalent req'd in Computers, Engineering, Math or any related field of study + 2 yrs of related exp. 40 hrs/wk. Must have proof of legal authority to work permanently in the U.S. Send resume to HR Manager, Redsalsa Technologies, Inc., 184 Shuman Blvd, Suite#180, Naperville IL 60563.

Sr. Applications Programmer w/2 yrs exp in using SEI CMM quality control standards, full life cycle expertise in ADR securities, cross-product processing, Power Builder with PFC, Sybase ASE, Oracle, SQL Anywhere, Visual Basic, Crystal Reports, Actuate, Unix, Java, web component development, Erwin, Visual Source Safe, Clearcase, Netscape Enterprise Server. Mail Res to: Open Systems Technologies, Inc. 8 Winter Street, 6th Floor, Boston, MA 02108.

Programmer Analysts to analyze, design, s/w apps using Java, ASP, Servlets, JDBC, HTML, Oracle, PL/SQL, Dev 2000, Forms, Reports Windows OS; design web pages dynamically using JavaScript; design database structure using UML; provide on site maintenance support, debug, modify, fine tune and perform code optimization. Require: BS or Foreign equiv with concentration in CS/Science/Engg (any branch) with 2 yrs exp in IT. Competitive salary, F/T positions. Travel involved. Resume to IOR Technologies, Inc. 2400 86th st, Ste12, Urbandale, IA 50322. Job ID IORPA1104.

System Development Analyst wanted to design and develop system software for law enforcement agencies with emphasis on systems tools, communications programming, and application programming using VB, VC, C++ & related language or systems and SQL Server Database Administration. Bachelor degree in Computer Science & 2 years of experience required. Send resume to Law Enforcement Support Agency, 955 Tacoma Ave. S., Suite 101, Tacoma, WA 98402.

SAP Business Systems Analyst. Thomson, Inc. is seeking an SAP Business Systems Analyst to consult with clients regarding SAP software systems, provide SAP analysis, redesign, and configuration of clients' business procedures, policies, and processes, and act as liaison between the application developers and the business community to define business and system requirements. Must have 4 years of experience in SAP consulting and configuration. Send cover letter and resume to: Betty Moreno-Silva, Manager, Human Resources, Thomson, Inc., 3233 East Mission Oaks Boulevard, Camarillo, CA 93012. Please reference Job #AMM in your cover letter.

Programmers (Level-3): Develop & write computer programs for web/client-server software apps. & convert project specs. in JD Edwards One World, Microsoft tech., Oracle and Java/J2EE. BS in Comp. Sc., or rel. field & 2 yrs. software development exp. including at least 12 months exp. in job offered required. \$50,200/Yr. & benefits. Mail resume to Jann Nielsen, Melaleuca, Inc., 3910 S. Yellowstone Hwy., Idaho Falls, ID 83402. No phone calls please. EOE.

Software Developer

Developing and programming large scale electronic messaging system for markets in China and other eastern countries, researching the proper technologies to enhance the development process, and providing prototypes for each program to be coded in Java/NetBeans, C/C++, JavaScript, etc. Req. MS degree in CS or a related field and proficiency in Java/NetBeans, C/C++, JavaScript, and XML. Ability to understand written Chinese or other eastern Asian languages also required. 40 hrs/wk. Fax resume to Send2Fax, LLC. at (843) 645-9501 or email hr@send2fax.com.



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Positions require a BS and relevant experience; a combination of experience and college level education may be accepted. The flexibility to travel and be on-call may be necessary. Proof of legal authorization to work in the U.S. is required. Please forward your resume to Computer Sciences Corp., Attn: J. Le, 2100 E. Grand Ave., Mail Code A209, El Segundo, CA 90245. Please indicate the specific occupation and location for which you are applying.

SAP Business Intelligence company seeks experienced SAP functional/technical consultants familiar with generic and custom extractors, data modeling, info sources and info cubes. Also seeking SEM, CRM and SCM/APO experience. Placements throughout US. Please email resume to recruiting@bisamerica.com or fax to 305-675-0686.

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Seeking qualified candidates for Sr. & mid-level IT professional positions including: Programmer Analysts, Database Administrators, Software Engineers, IT/Software and similar type positions. Candidates must possess MS/BS or equivalent and/or related work experience. Please mail resume and references to:
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Attn: HR
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Union, NJ 07083 EOE

SW Engin'rs: Rsrch, design & test RDBMS, CRM, Web/Data Warehouse Info mgt sw appl'n w/ JDK, Cobol, Vignette, Oracle, Sql Server, Toad, Dev'lpr Suite, Avaya, Lucent, CTI, Egain, .net, MCMS, ASP, VB, Bus. Obj, Erwin, C#, XML, WinRunner on Unix/Windows. 40h/w, 8-5. BS in Eng'g/Bus field, 2yr wk exp in job or any posit'n w/ Vignette, JDK, Cobol. Resume to GBS at Chicago, reddey@genesiscorp.com fax: 317-579-1445.

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For .NET devs, delivery exp on an actual C#/NET project w/ integration w/3rd party applications & non-Microsoft technologies is essential & development exp using Microsoft languages & tools, such as COM+, ASP.NET, ADO.NET, Enterprise Services, etc. J2EE devs must have delivery exp as a programmer, analyst or engineer on a large-scale J2EE application. Exp must incl OO design & design patterns. Pls E-mail res to: work@thoughtworks.com.

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ThoughtWorks is a global, rapidly-growing application development firm looking for .NET and Java/J2EE developers for its Chicago, Nashville, New York, and San Francisco offices. We build highly complex, high business value applications for Global-1000 clients. .NET/Java/J2EE developers must have a minimum of a Bach degree in Computer Sci, Computer Engineering, Computer Info Systems, Elec Engineering or a related field. Must have at least 3 yrs of exp incl analysis, design, coding & implementation of large scale, complex OO applications. Must be open to possible extensive travel.

For .NET devs, delivery exp on an actual C#/NET project w/ integration w/3rd party applications & non-Microsoft technologies is essential & must have at least 1.5 yrs of development exp using Microsoft languages & tools, such as COM+, ASP.NET, ADO.NET, Enterprise Services, etc. J2EE devs must have delivery exp as a programmer, analyst or engineer on a large-scale J2EE application. Exp must incl OO design & design patterns. Pls E-mail res to: work@thoughtworks.com.

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Cityon Systems has openings in Plano, TX & other locations throughout the US for programmer analysts, software engineers, DBA's with working knowledge in: INFORMIX, UNIX, SAP 4.6c & 4.7, BAPI, ABAP/4, MicroStrategy, 7i, Oracle 8i, PowerBuilder, or Peoplesoft 8.x. Bachelor's in CS, Engineering, Math or related & 2 years exp. req'd. Excellent benefits. Send confidential resume to: HR, Cityon Systems, 2000 N. Central Expy, Ste. 115, Plano, TX 75074.

Computer Scientist

Responsible for R&D of hardware & software formal verification framework. Duties include design & implementation of formal specification language, new automated verification algorithms; overall system infrastructure; perform research in formal methods area; write research papers & technical reports. This position requires Ph.D. in CS with doctoral dissertation emphasis in software engineering & formal methods for analysis & verification of software & hardware systems. Research background to include: design, implementation; use of model checkers, static analyzers, compilers; software verification; implementation & design skills including object technology; programming skills including C++, Scheme, Emacs-Lisp, & Java; working knowledge of automatic theorem proving & formal semantics of programming languages. This position is located in Menlo Park, CA. Please apply, indicating job# 2251, via our website @ www.sri.com or mailing address at 333 Ravenswood Ave, Menlo Park, CA 94025. Attn: Employment Dept. EOE/AA

Engineer, Senior Software - Speech Recognition Applications: Develop, improve and maintain human-computer interface software for medical applications. Requires: Master's or Ph.D. degree in CS, EE, Computational Linguistics or equiv. plus 2 yrs. exp. as Sr. S/W Eng. - SR, or Research Assistant, Speech Scientist, Engineer, or equiv. working in industrial s/w development environment; strong coding skills in C/C++; strong speech recognition exp. using HMM approach; comfort with multiple platforms, especially Linux and Windows; excellent writing and verbal skills; embedded programming experience; signal processing knowledge. F/T.

Must be able to work without employer sponsorship. Send resume to: Karl Storz Imaging, Attn: H.R. CW1104, 175 Cremona Dr., Goleta CA 93117 or email to jobs@ksimaging.com. EOE. M/F/V/D. Principals only.

A position is available for a Software Engineer in Columbus, Ohio with a software developer and supplier. The Software Engineer will be primarily responsible for product design, bug verification, release testing, and beta support projects for financial and accounting software which may require research and analysis. Candidates for this position should possess a Bachelor's degree in business, software engineering or computer science; at least 1 year's experience developing financial software applications; and demonstrated knowledge of management information systems, systems analysis and design, accounting, finance, and operations management. Apply by mail to: James Lenard, Mapics Inc., 2800 Corporate Exchange Drive, Columbus, Ohio 43231.

Satya Marg Solutions Inc, Londonderry, NH needs experienced programmer Analysts having a Bachelors Degree or equivalent with two years of progressive work experience in client server technologies, developing software applications using Oracle, SQL Server, VC++, VB, ASP, Developer 2000 and Java. Knowledge of Microsoft.Net technologies is a plus. 40 hour week, M-F, competitive salary and benefits. apply with resume to Satya marg Solutions Inc., Hr Department, 75 Gilcrest Rd, Suite 200, Londonderry, NH 03053 or email: HR@smsolutionsinc.com

Software Segment Leader

For Melbourne, FL employment. 2 openings available. 40 hrs./wk. 8:00am-5:00pm. \$65,000-\$70,000/yr. Requirements: Bachelor's degree in Computer Science or Electrical Engineering. 3 yrs. work exp. applying C++ & OOA/OOD techniques to the development of large scale software systems, including Unix platform. 3 yrs. work exp. that includes: managing & planning the complete software lifecycle, including conducting requirements analysis & use case generation; & the domain of railroad operations, strategic software outsourcing & subcontract management. Duties: Software system engineering for the design & implementation of a next generation railroad dispatch system. Responsibilities include systems & software engineering tasks. Systems engineering tasks consist of: system analysis, including customer interface; system design; specification generation; use case development; system traceability development; & development of a unified model for train dispatching systems. Software engineering tasks consist of: software requirements analysis; architecture implementation; software analysis/design (including scenario, interaction, sequence & state diagrams); & implementation of a train dispatching system. Work closely w/the customer & software engineers in developing & tracking system & subsystem level requirements, developing & maintaining internal & external interface control documents, & verifying that all requirements have been tested successfully. To apply send resume to Agency for Workforce Innovation, P.O. Box 10869, Tallahassee, FL 32302, Re-JOFL # 2566337 & JOFL # 2557471.

IT PROFESSIONALS, BUSINESS DEVELOPMENT MANAGERS AND FINANCIAL PROFESSIONALS

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Software Engineer. Design and implement SQL and Perl scripts-based components needed to provide access and manipulation of data in various data marts and enterprise data warehouses. Document all design and development efforts for long term support; hold overall responsibility for component and work on project architecture to assure design and implementation are consistent with other parts of existing project and vision for future projects. Utilize UML tools to design solutions and document designs for others; test components to test harness level, including unit testing and reproducible automatic mechanism to validate. BS in Computer Science or related discipline and 4 yrs. experience in software development or data warehousing, including Java, Java Beans and SML required. 8:00-4:45. \$82,000/yr. Please submit resume to: Employment Security Commission, 3351 Carl Sandburg Ct., Raleigh, NC 27610. Resume must include applicant's SS#, Job Order #NC7251828 and DOT code #030.062-010.

Programmer Analyst (Micro/Web) - Multiple Openings

Structured systems analysis, design, development, testing, quality assurance, implementation, integration, maintenance and support of integrated client-server based systems for business, financial, banking, manufacturing and other commercial business application systems in a multi-hardware/multi-software environment using centralized or distributed relational database management systems, 4GLs (Fourth Generation Languages) and other GUI (Graphical User Interface) front-end tools. Analysis, design and development of client-server applications using object-oriented methodology. Bachelor's Degree (or equivalent) in Computer Science/Math/Engineering/Science/Business-Commerce and 1 yr. experience in job offered or as Software Engineer/Systems Analyst are required. Must have appropriate combination of skills as follows: 1 of A and 2 of B; or 2 of A and 1 of B; or 3 of A. A includes Oracle, Sybase, Informix, SQL Server, Progress, Ingres, Access and Proxy Server; and B includes PowerBuilder, Visual Basic, MS-Windows, Visual C++, JAM, APT-SQL, SQL*FORMS, ESOL/C, GUPTA SQL, Progress 4GL, Informix 4GL, Ingres 4GL, C, Java, Lotus Notes, HTML, CGI, IIS, ASP, Front Page, Perl and Java Development Kit (JDK); High mobility preferred 40 hrs/week, 8 am - 5 pm. \$66,533 - \$78,000 per year. Qualified applicants should contact or send resume to: Armstrong County CareerLink, ATTN: CL Program Supervisor, 1270 North Water Street, PO Box 759, Kittanning, PA 16201-0759. Refer to Job Order # WEB 466922.

Computer Scientist

Responsible for performing basic research in intelligent agent systems & applying the results to challenging real-world problems. Responsibilities will include managing maintenance & extension of existing BDI (Belief Desire Intention) agent software & leading research efforts in the area of robustness for agent systems. Requires PhD in computer science with doctoral research & dissertation emphasis in BDI agent systems plus five years experience in the application of BDI agent systems to real-world problems. Requires publication record in BDI systems. Background must include theoretical foundations of BDI agent systems; programming in Prolog, Python, Java, and Lisp; software engineering project leadership experience. This position is located in Menlo Park, CA. Please apply, indicating job# 2263, via our website @ www.sn.com or mailing address at 333 Ravenswood Ave, Menlo Park, CA 94025. Attn: Employment Dept. EOE/AA.

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Sharon Machlis, managing editor/online (508) 820-8231

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David Waugh, associate art director (508) 820-8142

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Julie Quinn, senior designer
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John Klossner, cartoonist

ADMINISTRATIVE SUPPORT

Linda Gorgone, office manager (508) 820-8176

CONTRIBUTING COLUMNISTS

Pimm Fox, **Michael Gartenberg**,
Dan Gillmor, **Paul Glen**, **Barbara Gomolski**,
Thornton A. May, **David Moschella**,
Bart Perkins, **Paul A. Strassmann**

CONTRIBUTING WRITERS

Mary Brandel, **Russell Kay**, **Sami Lais**,
Robert L. Scheier, **Steve Ulfelder**

GENERAL INFORMATION

TELEPHONE/FAX

Main phone number . . . (508) 879-0760
All editors unless otherwise noted below
Main fax number (508) 875-8931
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Our Web address is
www.computerworld.com.
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Audit

Interwoven that it was in compliance with the TeamSite licensing agreement, the purchasing manager added. A spokesman for Interwoven said the company wouldn't comment on whether it was sending such letters to customers.

The financial services firm isn't alone. Lawrence A. Husick, a partner at Lipton, Weinberger & Husick, an intellectual property law firm in Malvern, Pa., said he has been contacted by several clients recently who have received similar letters from software vendors that he declined to identify, except to call them "the usual suspects."

Husick said he doesn't be-

lieve that the letters represent an honest effort among vendors to meet Sarbanes-Oxley regulatory requirements — a sentiment shared by several IT asset managers attending the conference.

"Vendors will use every tool they have at their disposal to increase revenues — they're not doing this for their own [Sarbanes-Oxley] compliance requirements," he added.

Vendor Defense

Jenny Schuchert, vice president of program development at Akron, Ohio-based International Association of IT Asset Managers Inc. (IAITAM), disagreed.

Schuchert said she hadn't previously heard about the letters but wouldn't be surprised if software vendors were mailing them out. Many software

AT A GLANCE

What's happening: Some enterprise software customers said they're receiving letters from software vendors requesting that they conduct self-audits of their software use in order to help the vendors comply with requirements under the Sarbanes-Oxley Act of 2002.

Why it matters: Some IT managers believe the letter campaign is merely a ruse to get customers to increase their software audits.

vendors have poor record-keeping procedures and may need customers to conduct self-audits so the vendors can attest to the financial controls that support their sales activities, she noted.

"Regulators are on [vendors] to track their revenues, when the customer contracts were started, the size of the deals, etc.," added Schuchert.

Barbara Rembiesa, president of the IAITAM, the user group that sponsored the conference, said she spoke

with "a few" attendees there who have received Sarbanes-Oxley-related self-audit requests from software vendors. "Publishers can request self-audits anytime, and they're within their rights to do it," she said.

But several conference attendees said they were irked by the approach, even though their organizations haven't received such correspondence. "I think [software vendors] are doing this to get more people to conduct audits. It's bogus,"

said an IT asset manager at a large financial services firm in the Northeast who requested anonymity.

Rod Anderson, a spokesman for Novell Inc. in Waltham, Mass., said the company has been sending letters to customers "for a number of years" requesting that they conduct self-audits. However, he said, Novell hasn't sent customers any letters containing references to Sarbanes-Oxley.

A spokeswoman for Oracle Corp. said the vendor hasn't sent users such letters. Spokesmen for IBM and Microsoft Corp. declined to comment for this story. **50414**

MORE ASSET MANAGEMENT

Barbara Rembiesa of the IAITAM talks about Sarb-Ox and licensing issues:

QuickLink 50412
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Microsoft LCS Security Features Drive Interest in Corporate IM

Will enable users of popular messaging systems to communicate more safely

BY TODD R. WEISS

Microsoft Corp.'s new Live Communications Server (LCS) 2005 could prove to be a crucial ingredient in the spread of corporate instant messaging use, some users and analysts say.

The offering, which is compatible with most popular IM systems, has corporate users and vendors eyeing new opportunities for more-secure messaging.

Taylor Collyer, director of server marketing at Microsoft, said that when used with a special connectivity pack, LCS will allow more-secure interaction with users running Yahoo Inc.'s Yahoo Messenger, America Online Inc.'s Instant Messenger and Microsoft's MSN Messenger. Those IM commu-

nications will be enabled in secure, encrypted messages, permitting LCS users to more safely communicate with users of the popular free IM clients. That's important, Collyer said, because "people don't want corporate secrets leaking out the back door."

LCS is due to ship in December. In 2005, Microsoft will release a new IM client, code-named Istanbul, that will be the preferred client for LCS.

Graham Lawlor, chairman of the New York-based Financial Services Instant Messaging Association (FIMA) and program manager of IM at New York-based Deutsche Bank, a heavy user of secure enterprise IM, said the interoperability promised by LCS 2005 is a "pretty fundamental

change in the industry, especially coming from a company like Microsoft."

It will allow the broad user base of the free IM community to take advantage of the "richness of enterprise IM," which offers more security and usability than free IM clients, Lawlor said.

FIMA was created in 2002 to pressure vendors into standardizing IM software to meet compatibility, security and oth-

er business IT needs [QuickLink 33724]. The FIMA lineup includes Bank of America, Citigroup, Credit Suisse First Boston, Deutsche Bank, J.P. Morgan Chase & Co., Lehman Brothers Inc., Merrill Lynch & Co., Prudential Securities Inc. and UBS Warburg LLC.

Some FIMA members have been beta-testing LCS 2005, Lawlor said, and most are at least investigating the product for possible use.

Mike Miller, director of support services for newspaper and television conglomerate Media General Inc. in Richmond, Va., said IM use at his company is still light; only about 100 out of some 8,000 workers use an IT-endorsed system. Those workers use the free AOL IM client, with added security, logging, management and control features provided by Waltham, Mass.-based IMlogic Inc.'s IM Manager software.

Media General has looked at enterprise IM systems, but company officials agreed that there's no need to act until user numbers grow, Miller said.

Genelle Hung, an analyst at The Radicati Group Inc. in Palo Alto, Calif., said corporate interest in IM is due, in some cases, to the technology's "presence" feature, which enables users to see who is available and online. "It's definitely picking up in terms of enterprise IM," Hung said. Some companies are still not ready for enterprise IM packages, though, and are using the free IM clients along with management tools from vendors like IMlogic, Akonix Systems Inc. and FaceTime Communications Inc., she said.

Joe Wilcox, an analyst at Jupiter Research in New York, said corporate interest in enterprise IM has grown because of regulatory requirements for message logging and concerns that public IM networks are unsafe. "For some retailers, I wouldn't say it's must-have," Wilcox said. "But where there are people sitting at desks and co-workers are on another floor or in another city... the must-have increases dramatically."

50413

Enterprise IM Benefits

Companies choose to buy IM systems instead of using free alternatives in order to get the following features:

- Message logging
- Network security
- Regulatory compliance
- Management control

FRANK HAYES ■ FRANKLY SPEAKING

Offshore Dot-Bomb

WHY ARE WE OFFSHORING IT? I've puzzled over that question ever since I spent a day last month at a conference for lawyers on IT offshoring. The lawyers, of course, were focused on how to write good outsourcing contracts — struggling to figure out how to deal with foreign laws, privacy, security, due diligence and all the other unfamiliar complications offshoring brings.

But why go to all this effort for something that, for corporate IT at least, is really untried, uncertain terra incognita? And it finally hit me: IT offshoring agreements aren't being done as conventional business deals on the usual business basis.

They're being done on faith. It's like dot-com mania all over again.

Don't laugh. True, there's none of the dot-com hoopla here. These days, most companies won't even talk publicly about their offshoring.

But they're doing it. And as with the rush to Web commerce, there's more faith than fact driving the march to outsource — even though the numbers, the expertise and the experience aren't there to justify that faith.

With the dot-coms, we didn't know whether a Web-based business model would work at all — or if it did, what kinds of businesses it would support. We didn't know how fast business could shift to the Web, or whether dot-coms really could transform retailing. All we knew was that bits cost less than bricks, so we figured everything else must cost less on the Internet, too.

A scrap of data, an untried business model and a lot of faith: That was the dot-com way, and we all chased it.

And offshoring? We know offshore programmers get paid less — they're the bits-cheaper-than-bricks part of the scheme.

But we don't know what kinds of corporate IT projects can be effectively offshored. Or what happens to quality levels as offshoring volume ramps up. Or whether outsourcing will leave us with the flexibility and agility to adjust to rapidly changing business conditions, take advantage of new market opportunities and quickly respond to new user needs.

We don't even know if we'd all be better off leaving offshoring behind in favor of component development, packaged applications and improved management tools.

We just don't have the experience

to tell us those things. Or the expertise to choose the right projects to outsource and then successfully manage from half a world away. Or the project results — the hard numbers — to give us confidence in the decision to outsource.

Then why all the IT outsourcing? It's faith, not fact, that drives it: the faith of CEOs, CFOs and CIOs that there has got to be a better way to do IT, and offshoring might be it.

Which explains why, as I learned at that conference, even though roughly half of offshoring projects fail, customers don't bail. Instead, they renegotiate their deals. They have faith, and offshoring gets a second chance.

It explains why cultural and legal quirks get forgiven, complications are accepted and extra overhead — such as the cost of getting and keeping lawyers up to speed on how to write offshore outsourcing contracts — is taken in stride. Sure, these might be permanent problems that will get worse. But they might just be teething pains that will work themselves out.

Most of all, it explains why offshoring seems to march on regardless of logic or practical considerations or early results.

Yes, that bubble of faith in offshoring will burst eventually. When that happens, as with the dot-coms, some offshoring approaches will disappear and some will survive. Experience will let us sort it all out, and the offshoring that survives will seem a lot more sensible in hindsight.

But until then, all we can do is struggle to figure it out — and hope we survive this offshoring act of faith. ☎ 50376



FRANK HAYES, *Computerworld's* senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

Right on Schedule

Every time there's a major change on the mainframe, this user complains that the change has broken one of his programs. "We're told to just fix it, even when we're certain it never ran," says systems programmer pilot fish. Then comes the day when a scheduled change is delayed at the last minute — but the user's broken-program complaint comes in on schedule. "I told our boss with a maniacal snicker," fish says. "Never heard a problem from that user again."

Oops!

School principal sends an urgent message to a power-user pilot

fish: "Help! I've got a report to get out, and the dot-matrix printer keeps printing on the same line over and over." Fish arrives and surveys the situation. Who hooked this printer up the first time, when it worked? he asks. "The IT guys," principal says. And who hooked it up the second time, when it didn't? Principal: "I did." Fish: And who placed it directly on top of the stack of fanfold paper it's supposed to use?



never believed him in the first place."

Foresight

Helpful user brings his old Zip drive, complete with all its cables, to IT manager pilot fish. "I don't have a need for this anymore," user says. "Would you take it?" Sure, says fish, we'll keep it in case someone else needs it. How many Zip disks do you have to go with it? "Several," says user, "but I need to keep them — I have important information saved on them."

Efficiency

When a new application rolls out to all this company's call centers, one site reports problems with it every day at around 4 p.m. Why just this site, and only at 4 p.m.? IT pilot fish wonders. "When the reporting user was contacted, she swore the problem was ongoing and affecting multiple users," says fish. Fish investigates and discovers that the user has been appointed "problem champion" to coordinate reporting of problems. "She was writing down all the individual problems," fish says, "and then reporting them once a day."

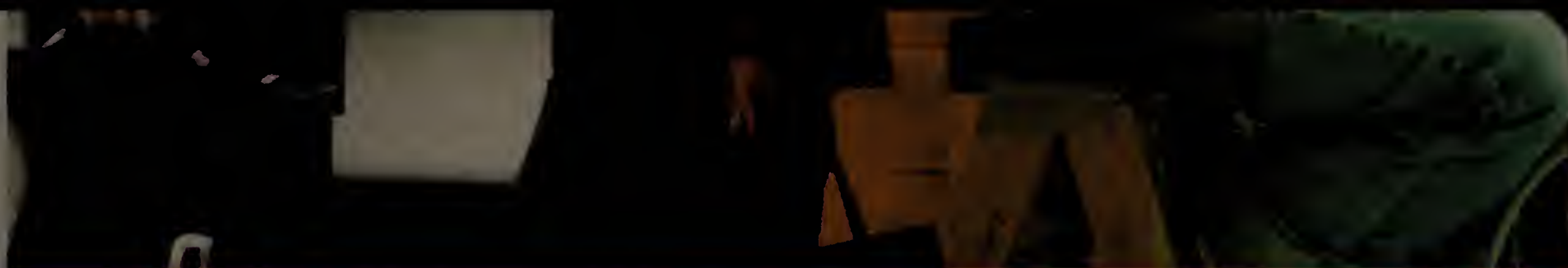


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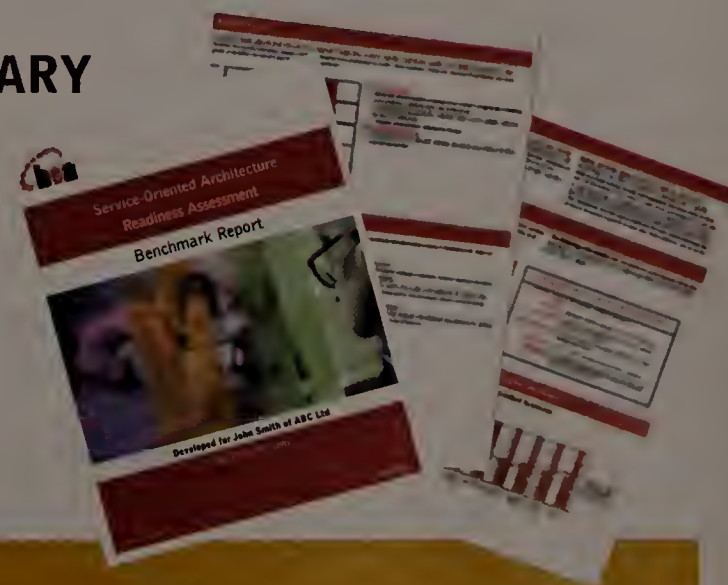
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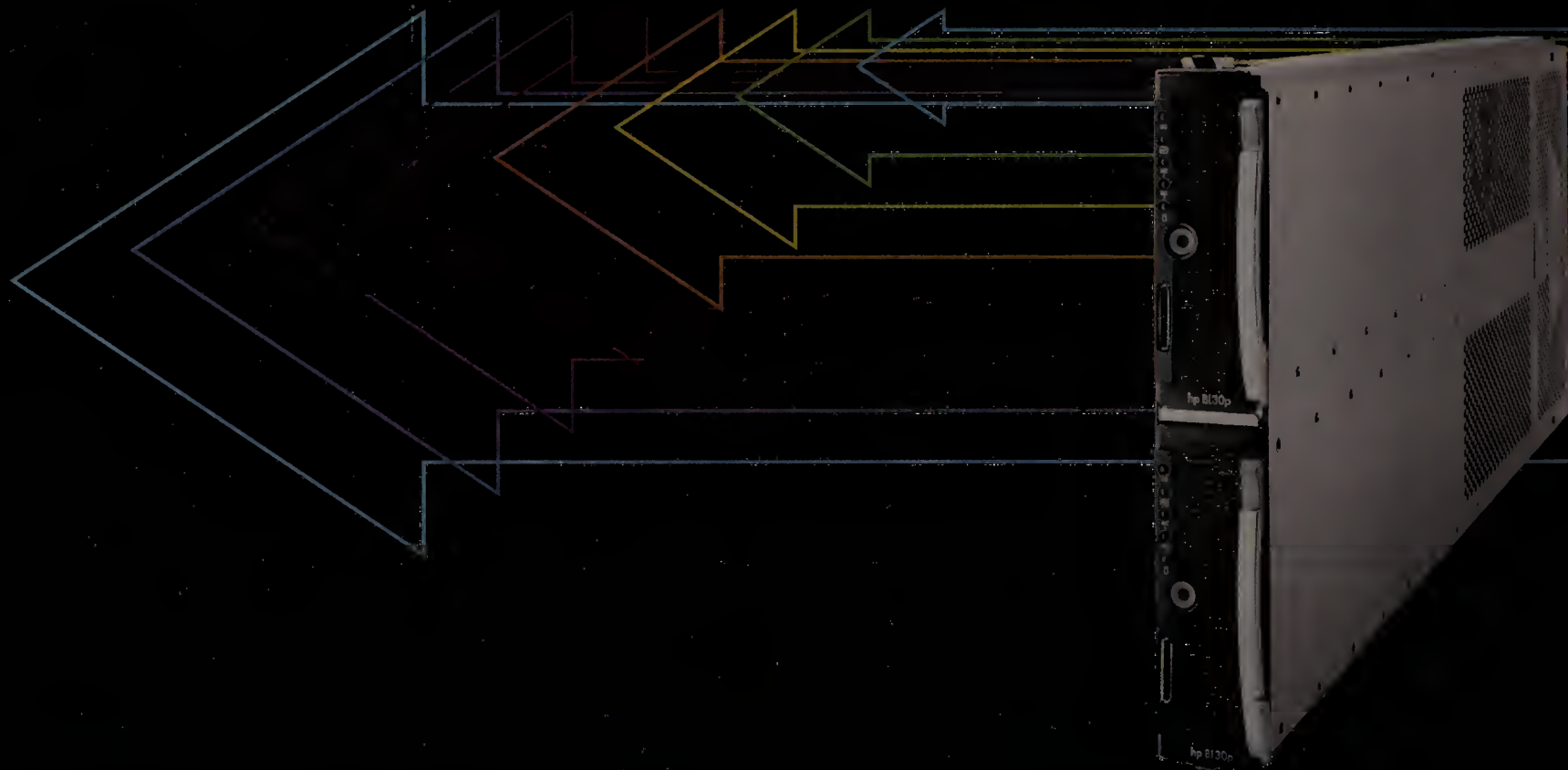
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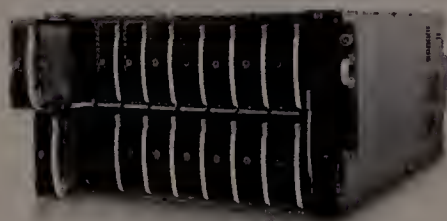
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